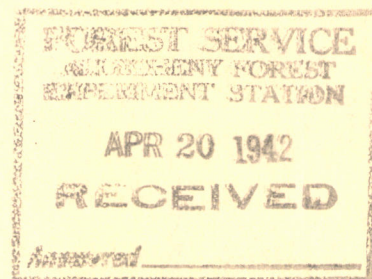


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THE FOREST SITUATION IN LINCOLN COUNTY MONTANA



by

S. Blair Hutchison

Northern
Rocky Mountain
Forest & Range
Experiment Station
Missoula, Montana

M. Bradner, Director



R.D.F.

This is a Progress Report of the
FOREST SURVEY
in the
NORTHERN ROCKY MOUNTAIN REGION

FOREST SURVEY STAFF

Robert K. Winters, Regional Director
Paul D. Kemp S. Blair Hutchison
William L. Royer

Of the many persons whose criticisms were helpful in preparing this report particular acknowledgment is due Mr. Karl A. Klehm and his staff, of the Kootenai National Forest.

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THE FOREST SITUATION IN LINCOLN COUNTY

by

S. Blair Hutchison
ASSISTANT FOREST ECONOMIST



Why This Report Has Been Written

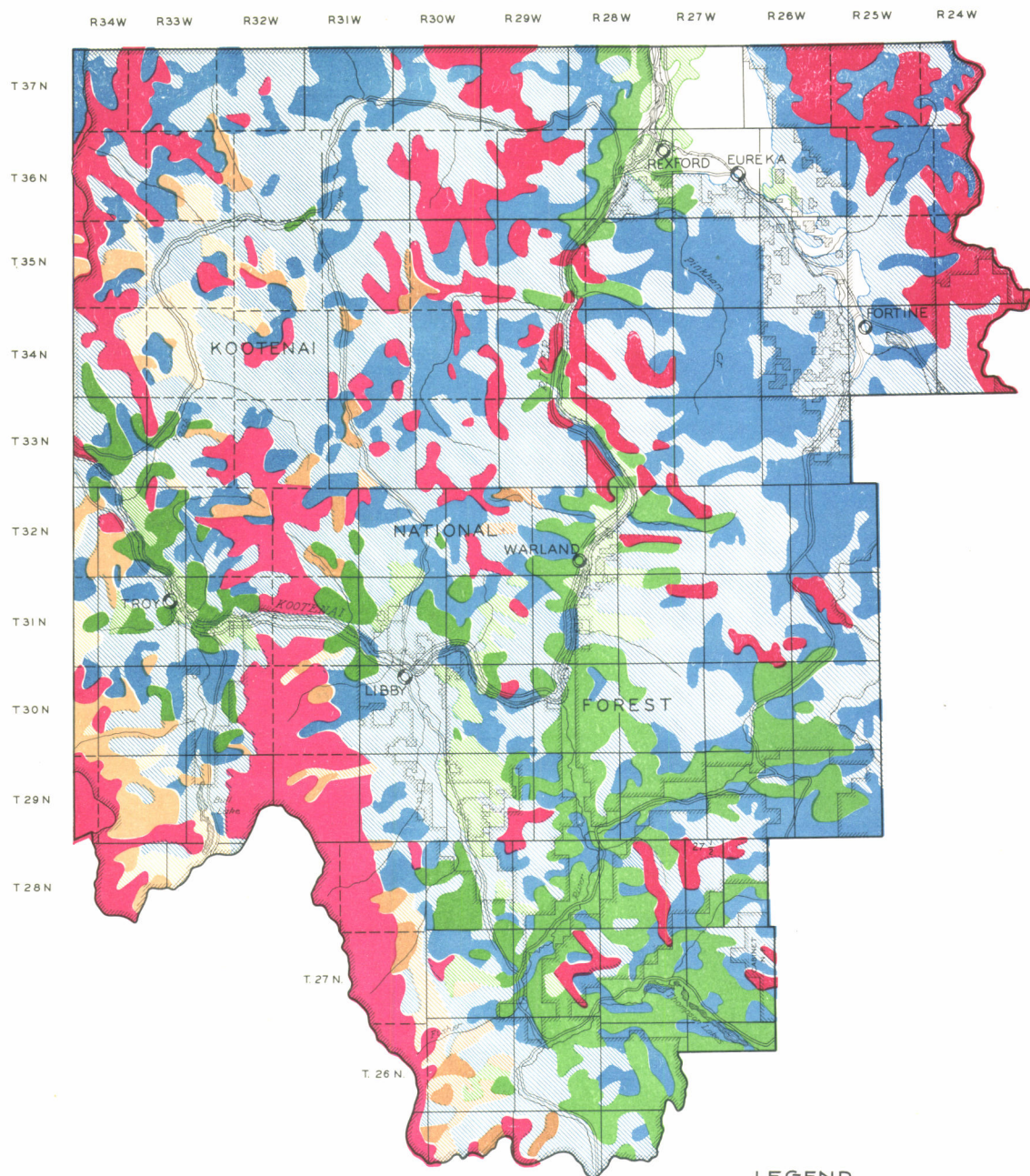
This report has one main purpose--to help create for Lincoln County a prosperous future.

Like every other part of the United States, Lincoln County has its problems. It is largely forested and must depend upon the products of the forest for most of its living. Those familiar with the history of our older forest communities know what can happen. In most of these communities the tale has been the same--first a feast and then a famine. But here the towns, the farms, and the industries are young and there is reason for real hope--hope because there is still time to do something about preventing the really lean years that follow unrestricted exploitation--hope because the country is still green and because there yet remains a substantial supply of virgin timber.

Permanent prosperity is not automatic, however. It must be nursed along with horse-sense planning and with action which looks ahead. This report attempts to present the facts concerning the forests and forest industries. Frankly, it is hoped that a better understanding of the situation will bring about more aggressive action. After all, the thing which is at stake is the comfortable homes which some families in Lincoln County have and the rest are trying to acquire. If our way of life is worth fighting for, certainly it is worth planning for.

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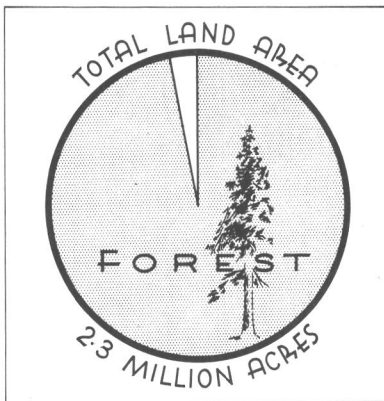
GENERALIZED FOREST TYPES Lincoln County, Montana

1939



LEGEND

SUBALPINE AND ROCKY NONCOMMERCIAL FOREST		
WHITE PINE FOREST	SAWTIMBER	
	NONSAWTIMBER	
PONDEROSA PINE FOREST	SAWTIMBER	
	NONSAWTIMBER	
OTHER FOREST LAND	SAWTIMBER	
	NONSAWTIMBER	
NONFOREST LAND		



THIS IS LINCOLN COUNTY

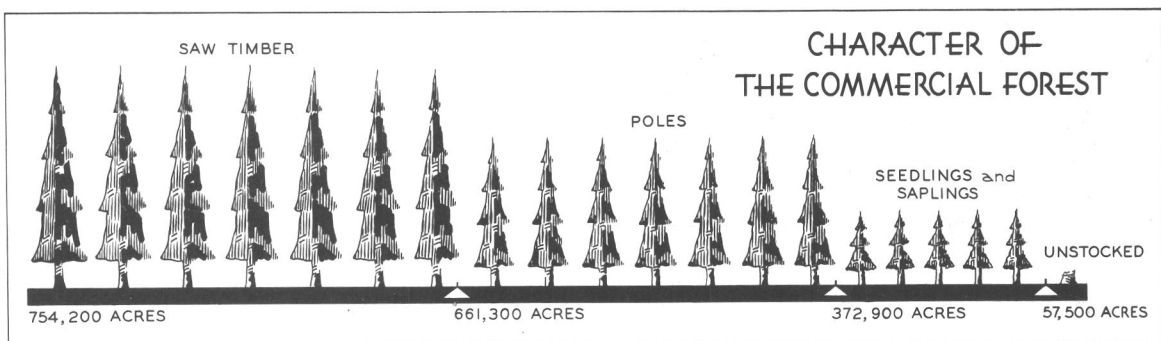
Lincoln County's most distinctive feature is its forests. From almost any vantage point timber stretches to the horizon in every direction. As a matter of fact, 97 percent of the land area is classified as forest. The one large open spot shown in the preceding map plus the many valley-bottom clearings add up to only 61,000 acres in more than 2 million.

	<u>Acres</u>
Forest	2,269,000
Brush & barren	11,000
Cultivated, pasture, grass, townsites	61,000
	<u>2,341,000</u>

This forest land can be classified as commercial and non-commercial on the basis of its value for the production of lumber, ties, fuelwood, and other timber products. There are 423,000 acres classified as noncommercial because they bear scrubby stands or are too far back in the hills to be logged profitably. Also included in "noncommercial" are a few acres which contain good timber and which are accessible but which have a higher value for recreation. The principal value of the noncommercial areas--and it is a great value--is in protecting the sources of the streams, and for recreation.

Four acres out of five are "commercial!" This area (1,846,000 acres in all) includes stands which are loggable at present or which it appears may be loggable sometime in the future because of improvements in the markets for timber products.

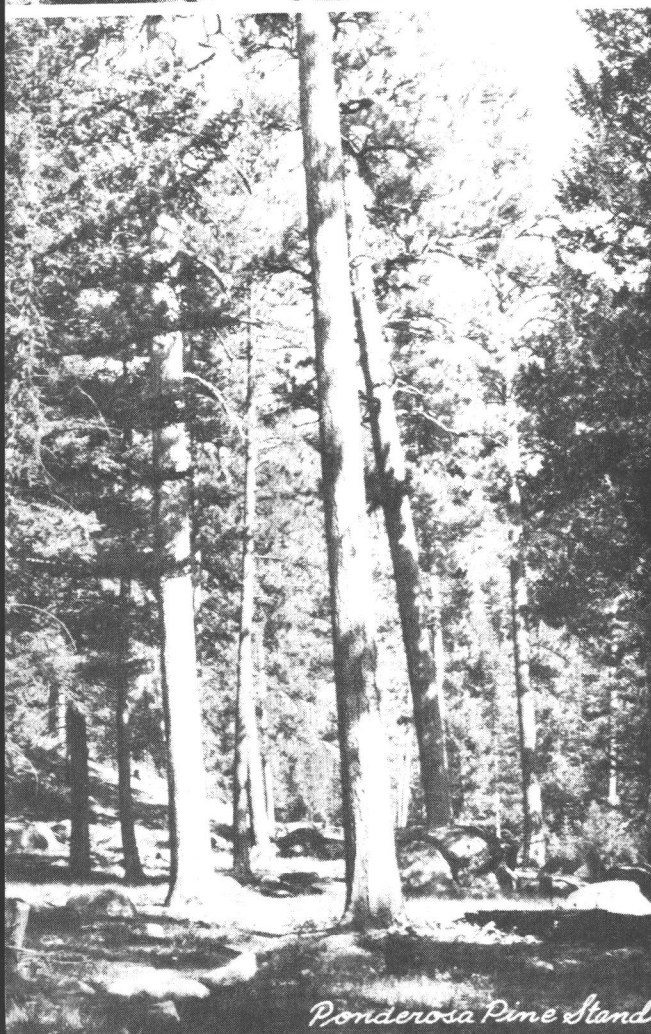
The chart below shows the nature of the stands on the commercial forest land. The large saw-timber area and the very small acreage with nothing on it are particularly significant.



CHARTS and DRAWINGS by JOHN B. LACASSE



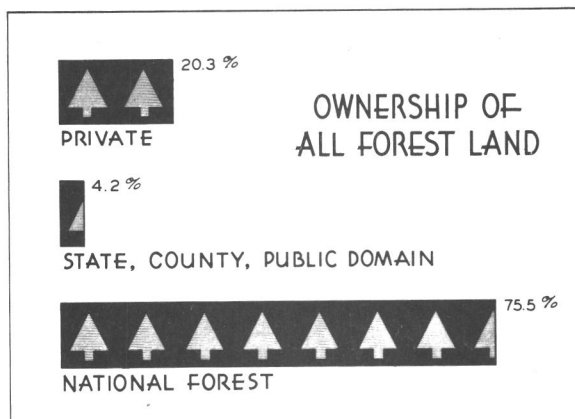
Pure Douglas fir Stand



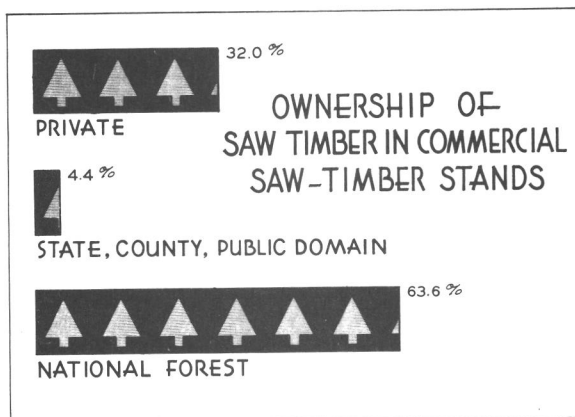
Ponderosa Pine Stand

More detailed forest statistics are presented on the last page of this book, but here are the forest facts in brief:

Four acres out of five are publicly owned.



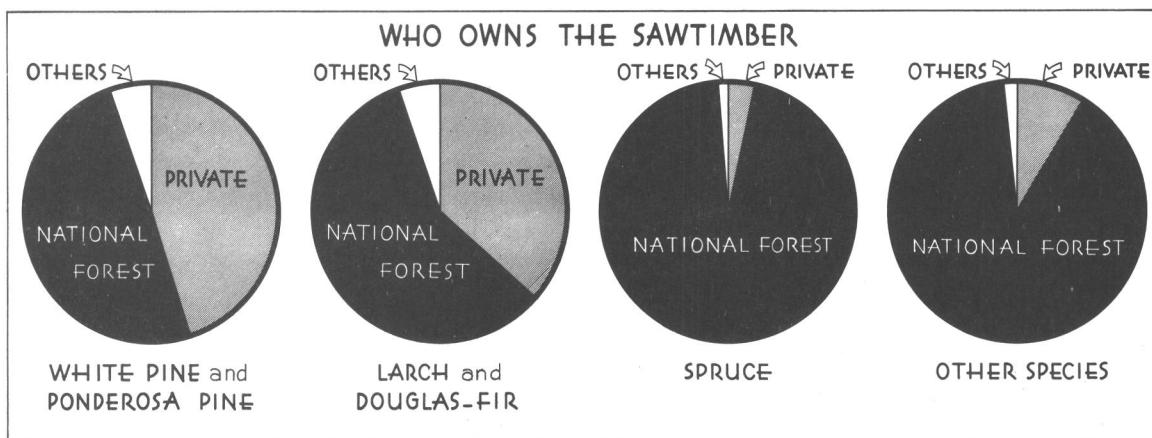
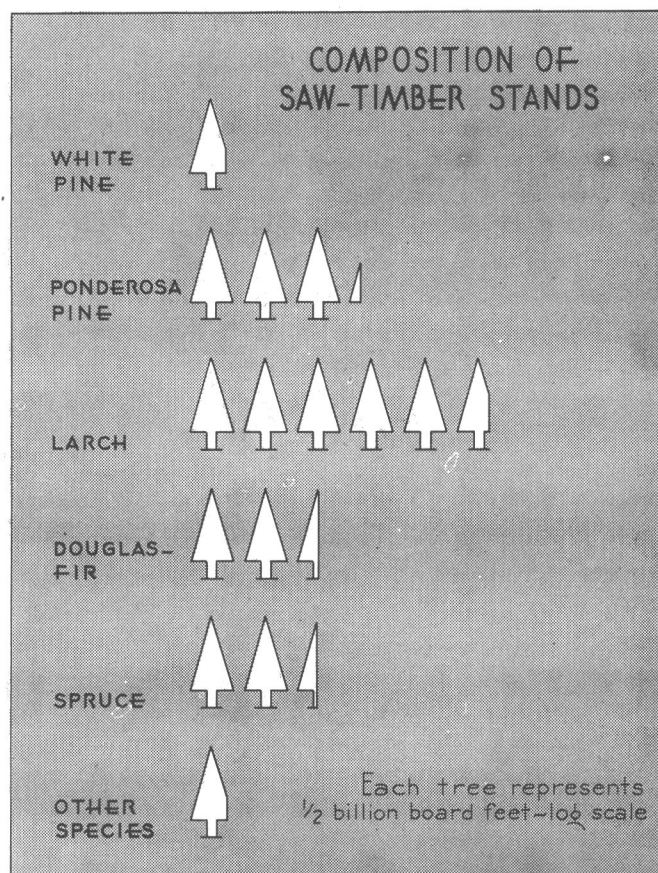
But the private holdings are more important than one might think from the above chart. The national forests include most of the low-grade forest land and less of the better timber.



The above saw timber totals to 7.8 billion feet which is actually more than is loggable at present. Included are poorer and more remote stands and smaller trees which cannot be cut at a profit now, but which have a prospective value. The figures are, therefore, higher than previous estimates.

Ten species of trees are represented in this 7.8 billion board feet of saw timber. More than half is larch and Douglas fir, and only one-quarter is ponderosa pine and white pine. As far as the lumber industry is concerned, there is not enough of the pines and too great a volume of the other species. This judgment is based on the fact that the markets for the other species have not been very good for many years except during the present national emergency. As this is written, many buyers are

glad to take lumber of almost any species. This is not likely to be the case when business returns to normal. The principal species in Lincoln County may be ranked in the following order according to value per unit: (1) white pine, (2) ponderosa pine, (3) spruce, (4) larch and Douglas-fir.



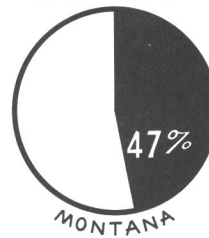
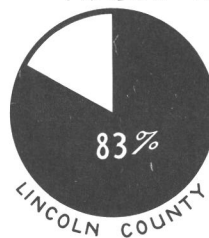


Looking north from Black Butte peak across the Tobacco Valley into Canada. This prairie land along the Kootenai River is the single large area in Lincoln County not originally forested.

The Industries

Despite the fact that 97 percent of the land area is forest, there are 534 farms in Lincoln County, according to the last census. Most of these are typical forest-country farms. Small clearings, like strings of beads, are strung along the rivers and streams--some in clusters, some isolated. Many of the farms are not self-sufficient units where the operator can be profitably employed from spring to spring. Rather they are places on which to live and grow part of the income, which must be added to with work in the woods, in the sawmills, and elsewhere. The average farm had only 76 acres which could be cultivated in 1939. We know that some have quite large plowable areas which means that the plowable land on some other places is very small. Actually an average

PERCENT OF FARMS ON WHICH LESS THAN
\$1000 OF PRODUCTS WERE SOLD
TRADED AND USED - 1939





There is an old saying that the first two owners of a cutover-land farm starve out while clearing enough land to furnish the third a respectable living.

of only 27 acres per farm was cultivated in 1939. The 1940 census shows also that 54 percent of the farm operators work away from their own places for a portion of the year. This is a greater percentage than anywhere else in Western Montana. Some work out for a few days; some most of the time. The operators who reported such outside employment in the last census worked 128 days apiece on the average during 1939.

Most of the farm income is derived from livestock and livestock products. The larger part of the hay and grain is fed locally and sold on the hoof or in the milk can.

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The mineral assets of Lincoln County appear to be many and varied, but as yet they are largely undeveloped. The extraction of vermiculite (or zonolite) for insulating material is the only stable mining enterprise at present. However, according to the Bonneville Power Administration, ten other minerals occur here which may have possibilities. In 1939, the value of the vermiculite produced was \$166,000, and the gold, silver, lead, and zinc ore mined had a value of \$80,000.

The volume of metal mined has been many times greater during some past years.

The population census for 1940 reports that 121 people were engaged in mining during that year.

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THE MINERAL
RESOURCES

Asbestos

Barite

Feldspar

Fluorspar

Gold

Iron

Lead

Pyrite

Silver

Vermiculite

Zinc

The Great Northern Railway has proved a very big asset to the county. Besides a substantial payroll (\$161,000 in 1939) this railroad contributes heavily to the county in taxes. Forty-seven percent of the taxes for the year 1939 were paid by the Great Northern. Then also, its purchases have stimulated local industry. Approximately 217,000 cross ties were laid down at the railroad sidings by tie cutters in 1939.

.

Farms, mines, and the railroads altogether contribute about three-tenths of the basic income in Lincoln County (excluding relief money). Forest industry supplies most of the rest. It is of two types, the administrative activities of State and Federal agencies, and the timber-product harvesting activities of various sorts.

It takes a fairly large organization to manage the 2 million acres of forest in Lincoln County. Probably the biggest part of the job is keeping the timber from burn-

ing up. Through cooperative agreement with other owners the entire load of fire protection is borne by the Forest Service. All activities of this agency required 1,750 man-months of work in 1939 (not including the Civilian Conservation Corps) which is equivalent to yearlong employment for 146 men. However, because of the pyramiding of the work during the warm months this employment has not been spread evenly over the year. In 1939, 23 persons were working during February, and ten times that number at the peak of the fire season. This is not a desirable situation.

The forests of Lincoln County produce such opposites as boards and huckleberries. These and eight other products are harvested in quantities worth noting. They constitute 84 percent of the tonnage shipped out on the Great Northern Railway.



The Libby sawmill--at present the only large plant in Lincoln County. It saws ponderosa pine, white pine, spruce, larch, and Douglas-fir.

Average annual production^o

Lumber	65,000,000 bd.ft. lbr. tally
Poles and piles	572,000 linear ft.
Hewed ties	11,000 pieces
Shingles	10,600 squares
Pulp logs (to Spokane, Washington)	1,400 cords
Converter poles (to Great Falls smelter)	6,300 pieces
Fence posts	117,000 pieces
Fuelwood	28,000 cords
Christmas trees	973,000 trees
Huckleberries	20,000 gallons

^o Lumber production is an average for the period 1935-1940; Christmas trees, 1938-1940; huckleberries, an estimate for the past few years; shingles, 1940; other products for various years representative of period 1925-1934.



The founders of the now abandoned Eureka sawmill in the background of this Christmas tree yard probably never dreamed that the "brush" they left behind would be logged while it was still the size of a man's arm. Douglas-fir is the only species cut for Christmas trees in Lincoln County.

Lumbering, which dwarfs the other forest industries, is almost a "one ring" affair. Twenty-seven sawmills were operating in 1940, but four-fifths of the lumber was sawed at the J. Neils Lumber Company plant in Libby. It is the second largest sawmill in Montana. Only five other mills in Lincoln County produced more than 1 million board feet of lumber in 1940, and the output of these was relatively small. The J. Neils Company employs about five hundred men in woods and mill on the average. During the summer of 1941 when operations were running full blast, approximately 750 persons were employed. This includes those working for contract loggers.

In 1927, several carloads of Christmas trees were shipped out of Lincoln County. The industry has grown mightily since then. Lincoln County trees now brighten the Yuletide in hundreds of thousands of midwestern homes. From 1938 through 1940, an average of 973,000 trees (approximately 205 carloads)

were cut in Lincoln County annually. Each of these trees when placed in a freight car meant about 10 cents to the community. Thus, an average of almost \$100,000 has been divided yearly among landowners, cutters, truckers, inspectors, and others in the chain of production. This employment, which extends through October and November, has helped take up the slack in many lean pocketbooks.

Of the forest enterprises, the huckleberry industry deserves mention more because of its uniqueness than its size. Huckleberrying is an old pastime in Lincoln County, but since the depression it has reached the status of an industry. For a two-month period, beginning sometime in July, 250 to 300 adults and many children have camped in the 35,000-acre huckleberry patch in the south end of the county. During the good seasons 20,000 gallons of berries have been gathered by hand and by various home-made mechanical pickers in the two-month period. The fruit, worth about \$8,000, has been mainly purchased by the canneries at Hamilton and Kalispell, Montana. About half of the berry pickers are Indians from Montana, Idaho, Washington, and Canada. For many of these Indians, and some of the whites, berry harvesting has been attractive mainly as an opportunity for a self-financing forest outing. The berry crop was short in 1941; it is possible that the next few seasons will continue to see few pickers in the "patch" because of improved economic conditions.

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As in most other places, State and Federal expenditures were a big source of support to the county during the past decade. The loans and grants of the Federal Government, classed under the general heading "Federal aid," averaged around \$237,000 annually during the six-year period 1933-1939. This includes the Public Works Administration, Work Projects Administration, farm credit, Federal relief money, and so on. The importance of public expenditures may be gauged from the fact that 20 percent of the population in the county received some form of welfare assistance during January 1940 (old age assistance, aid to dependent children, medical aid, aid to blind, general relief, work projects). During 1939, something over one-fourth of the people received such aid. It is to be expected that the expenditures for public aid will be less as long as business continues to be stimulated by war needs.

POPULATION - - - -	1940
Lincoln County -	7,882
Libby -	1,837
Eureka -	912
Troy -	796

WHERE THE MONEY COMES FROM



MINES
PAYROLL 1935



FARMS
VALUE OF PRODUCTS - 1939



RAILROAD
PAYROLL AND TAXES 1939



TIMBER PRODUCT INDUSTRY
PAYROLL AND TAXES 1939



FOREST SERVICE
PAYROLL 1939



CHRISTMAS TREES
AVERAGE VALUE 1938 - 1940



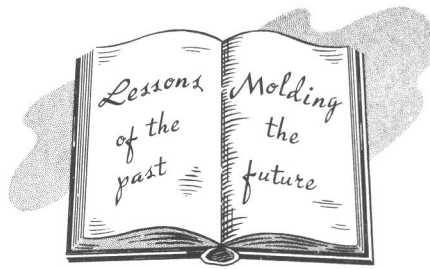
HUCKLEBERRIES
AVERAGE VALUE



FEDERAL AID
AVERAGE 1933 - 1939

Numbers at end of bars are
thousands of dollars

The chart on this page is an attempt to show how the 7,882 persons in Lincoln County are supported. The figures were obtained from a number of sources and for that reason there are several overlaps and obvious omissions. However, the chart indicates fairly well where the money comes from that buys the groceries, drugs, and haircuts. It is worth remembering that forest industry bears six-tenths of the load, and that during this period one-fourth of all the funds originated with the Federal Government.



WITH
this statistical picture in mind
we will first look back over the
development of Lincoln County to
learn the why of the present
situation. Then we will look
ahead and attempt to point out
some of the things which may be
done to make for a brighter fu-
ture.

LOOKING BACK

A HISTORIAN MIGHT DIVIDE THE HISTORY OF LINCOLN COUNTY UP TO THE PRESENT INTO THREE GENERAL PARTS--THE PERIOD OF EXPLORATION, THE PERIOD OF EXAGGERATION, AND THE PERIOD OF REALIZATION. Following the pioneering days when the resources were being "discovered," this locality passed through an interval of development marked by its optimism. There was a mining boom, a lumber boom, and an agricultural settlement boom. Then came the inevitable reversal of the trend, and the income of the county began to shrink in relation to the population. It became apparent in the course of time that Lincoln County was not destined to expand industrially as much as had once been expected.

Exploration of the northwestern corner of Montana began in 1808 when David Thompson penetrated this wilderness from the north, travelling down the Kootenai River. The Northwest Company, with which he was associated, soon after engaged in fur trading with the Indians, and it is said there was a flourishing traffic in skins until the 1860's when the traders moved on to virgin territory, closing the first chapter of white man's enterprise in this locality.

The Boom

About this time, however, prospectors were combing the mountains of the West, and in 1865 gold was discovered not far from the site of Libby. The first mining was done by placer methods, but in the 80's, hardrock mining began to occupy a prominent place in the picture. By 1890, development work on the quartz mines was well under way. Enthusiasm ran high in those early days. Quite a few men were employed at the mines, and much hard cash was invested in development work. Perhaps it was only a few who harbored an optimistic hope that Libby would become a second Butte, but a few, at least, did.

As a metal mining community, however, Libby never quite made the grade to the extent that Troy did. In 1917, the Snow Storm Mines Consolidated Company swung into full-scale operation near Troy, and the tonnage of lead, zinc, silver, gold ore produced in the county jumped from a little over 300 tons in 1916 to 62,000 tons in 1917. Ore production remained at this general level for the next two years, slumped in 1920 and 1921 but came back up in 1922. During the six-year period from 1917 to 1922, Lincoln County was at the peak of its metal mining activity.

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The metals were not all that glittered during the early years of the century. Agriculture was pictured as riding the same rainbow. This, of course, was not a state of affairs peculiar to Lincoln County, for during the great westward surge the promoters were everywhere making rosy prophecies--"The growing season is long.....Lincoln County is destined to become a great fruit-growing district..... the lands in the Kootenai Valley Reserve, when turned open to settlement, should eventually be worth as much as the Wenatchee (Washington) lands that range in price from \$1,000 to \$2,500 per acre." ° These were the bright hopes held out for agriculture.

The visionaries of the early days were a bit on the high side when they spoke of the farm land in Lincoln County eventually being worth \$1,000 to \$2,500 an acre. According to the Board of Equalization, the average value of the tillable land in 1940 was only \$18 per acre. Probably only a few took these early-day, wishful statements very seriously, however.

Regardless of how many were influenced by the bright prophecies, Lincoln County did experience a period of agricultural settlement. The Tobacco Valley supported a dozen farms in 1893, and it is said that the best of the prairie land had been taken up by 1900. During the early years of the century great pressure was brought to bear on the Forest Service to open to homesteaders certain areas which had been included in the national forest reservations. As a result, almost every national forest area having the slightest shadow of agricultural value was opened to settlement. Many homesteaders on these areas failed in the attempt to clear enough area to raise their living, but on the other hand many present-day farms or ranches were thus withdrawn from the national forest.

In 1910, the census showed 298 farms in Lincoln County. The land fever of the war and post-war period probably had something to do with the expansion that followed. At any rate, the number of farms doubled between 1910 and 1925. There were 583 in the latter year, which was the crest of the original agricultural expansion.

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Among the proposed industrial developments was a six-million-dollar power plant at Kootenai Falls with a paper mill, woodworking plant, and other manufacturing plants in connection. Another power plant was planned at the mouth of

° "History of Montana" by Helen Fitzgerald Sanders - 1913

the Yaak River to operate a sawmill and a pulp and paper mill. These were grand dreams but failed to get much beyond the blueprint stage. It is possible though that the power of the Kootenai River will some day be harnessed in connection with future industrial development.

While the plans for pulp and paper mills were not realized, a comparatively large lumber industry was built up. What may have been the first sawmill in this area was erected on the Libby townsite in the winter of 1891-1892, just before service began on the Great Northern Railroad. A number of small lumber mills operated in the following few years, but the industry did not begin to grow large until after the turn of the century, when the big mills, which were to play such an important part in the development of this county, were constructed. The first of these was the Dawson Lumber Company mill built at Libby in 1906. Sold and enlarged several times since then, this plant is operated today by the J. Neils Lumber Company. In 1906, also the Eureka Lumber Company started up at Eureka; this mill likewise changed hands several times. Close behind was the Warland Lumber Company plant erected at Warland in 1907. Purchased in 1916 by the Baird-Harper Lumber Company, it was rebuilt and enlarged following a fire in the next year. For a brief span of six years, the Lincoln Logging and Lumber Company operated at Fortine. Built late in 1911, this sawmill was dismantled in 1917. The dismantling of this mill, however, was offset by the construction of the Sandpoint Lumber and Pole Company's plant at Troy in 1921.

The year 1916 marked the peak of the lumber industry, when a total of 137 million board feet of lumber was cut by the four larger mills then operating. Despite the subsequent decline, the lumber output was still substantial during the early twenties. In 1923, the output of the Troy mill and the three other large plants amounted to 120 million board feet. Not included in this figure is the production of the many smaller sawmills, about which there are no data. All during this time, the Bonners Ferry Lumber Company was logging in Lincoln County for its mill in Bonners Ferry, Idaho. Most of the logs were driven down the Kootenai River. Incidentally, Canadian logs were also floated down the Kootenai, through Lincoln County to Bonners Ferry.

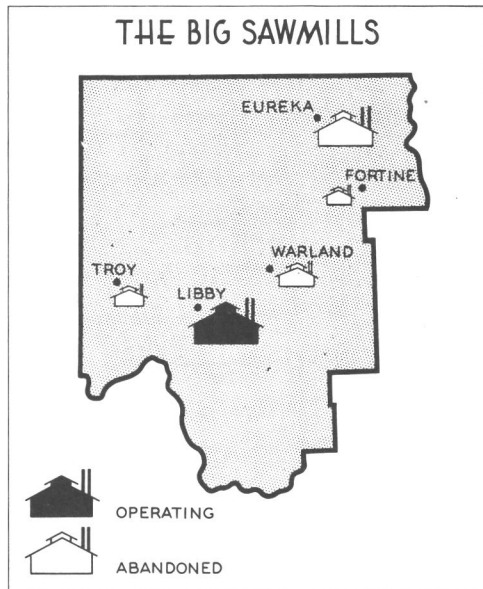
The fortunes of the whole county rose on the same wave with farm settlement, mining, and lumbering. Libby was an up-and-coming sawmill town. Eureka prospered from its sawmill and the surrounding farm land. Troy boasted a railroad division point, a lumber industry, and active mines. Rexford was a busy railroad point by virtue of a helper-engine station and a branch line into Canada. The population

of the county was approximately 8,800 in 1925 as compared with 3,600 in 1910.

The Decline

Unfortunately, Lincoln County was not able to hold on to all of its gains. Just as the industries rose together, they settled back in unison, also. In 1924, the Eureka mill closed for good. Two years later the Warland mill did likewise. And then in another two years, the Troy mill went out of the picture. None of these three plants by itself

had the capacity of the Libby mill, which is running yet, but their combined capacity was 1-1/3 times that of the Libby establishment. When they shut down, Lincoln County lost more than half of its lumber industry, and Eureka, Troy, and Warland were hit between the eyes.



Following 1922 the output of metal ore headed steadily downward. In 1927, the Snow Storm concentrator burned and the next year mining slowed almost to a standstill when only 1,500 tons of ore were extracted. In 1926, Troy was abandoned as a major division point on the Great Northern Railway because of better engines and longer hauls.

Thus this community received three set-backs in rapid succession.

1926--division point abandoned

1927--Snow Storm concentrator burned

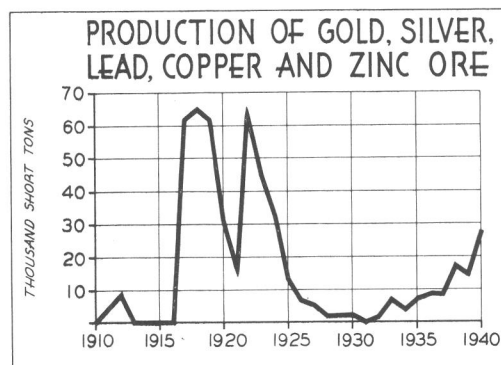
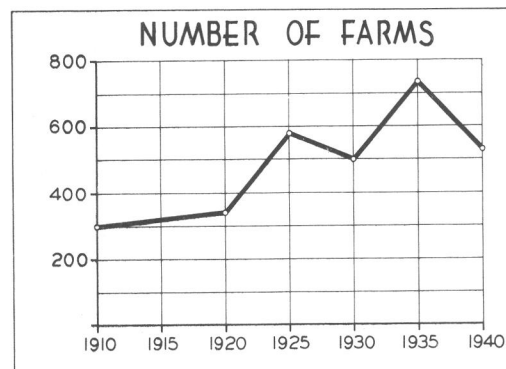
1928--Sandpoint Lumber and Pole Company mill burned

About the same time farm settlement fell off. The census of 1930 showed 14 percent fewer farms than in 1925. Probably some of the decline was due to the shrinkage in the volume of non-farm work. Then, also, it was becoming increasingly difficult to sustain a satisfactory existence on forest homesteads.

The net effect of this downward trend was twofold. Some people left. But the drop in population was not in proportion to the drop in earnings. Living became more difficult for the people who stayed. The following statement written

about Eureka in 1934 illustrates what happened throughout the county, with the exception of Libby:

"Before the Nation-wide crash of 1929, it (Eureka) was reduced to a ghost of its former self. The town that had once boasted a commercial club, a 25-piece band that was the pride of Lincoln County, Boy Scout troops, a young people's dancing club, and a salaried ball team, had none of these organizations. Before the mill shut down, 1,800 paid memberships were secured in the Red Cross as easily as 75 or 80 are at present. Formerly, 3 doctors, 2 dentists, 1 undertaker, and a modern hospital supplied the needs of Eureka citizens. Today 1 doctor remains."



The tightness of the pinch has been eased in recent years by the growth of the Christmas tree and vermiculite industries. Since 1933, metal mining has revived somewhat in response to the higher price of gold. A shingle mill is operating at Troy, and part of the J. Neils logging operations are centered there. On the other hand, the branch line of the Great Northern Railway from Rexford to Canada was abandoned in 1935, and with the installation of bigger engines the "helper" service at Rexford was discontinued in 1941. All in all, the county has fallen far short of recovering the ground lost during the twenties.

There was another upswing in farm settlement between 1930 and 1935, but this can hardly be called a healthy development. Partly, perhaps, the increase resulted from a back-to-the-land movement of local residents who lost their former means of livelihood, but many of the new settlers were driven from eastern prairies by drought. Whereas the first migrants were seeking their fortunes, most of the later group were mainly seeking to escape their misfortunes. While Lincoln County is much greener than the homes they left, most of them were foredoomed to failure, because the local agricultural possibilities are definitely limited. It is not surprising that the number of farms dropped back

at the time of the 1940 census. It is obvious that many of the places now being farmed will never be able to provide the right standard of living.

Today, Lincoln County has 90 percent of the population that it had in 1925, but much less in the way of industries.

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LOOKING AHEAD

IT IS TO BE HOPED THAT THE HISTORIANS OF THE FUTURE WILL BE ABLE TO NOTE A FOURTH PERIOD--BEGINNING ABOUT NOW--IN THE HISTORY OF LINCOLN COUNTY. THIS WILL BE THE PERIOD OF ADVANCE TO ECONOMIC STABILITY.

One might ask, "Why has Lincoln County been so unfortunate with its industries? Why is there this difficulty of supplying a satisfactory living for a small population in an area of relatively abundant resources?" There is no simple answer, but without fear of contradiction, we can say that the heavy hand of "Hard Luck" had much to do with past happenings.

But need Hard Luck or any other kind of luck play such an important part in the course of future events? Those who have examined the facts think not. Modern medicine has taken much of the chance out of life and health. Likewise planning and teamwork can reduce the likelihood of future economic misfortune. Today's plans can help insure tomorrow's bread and butter.

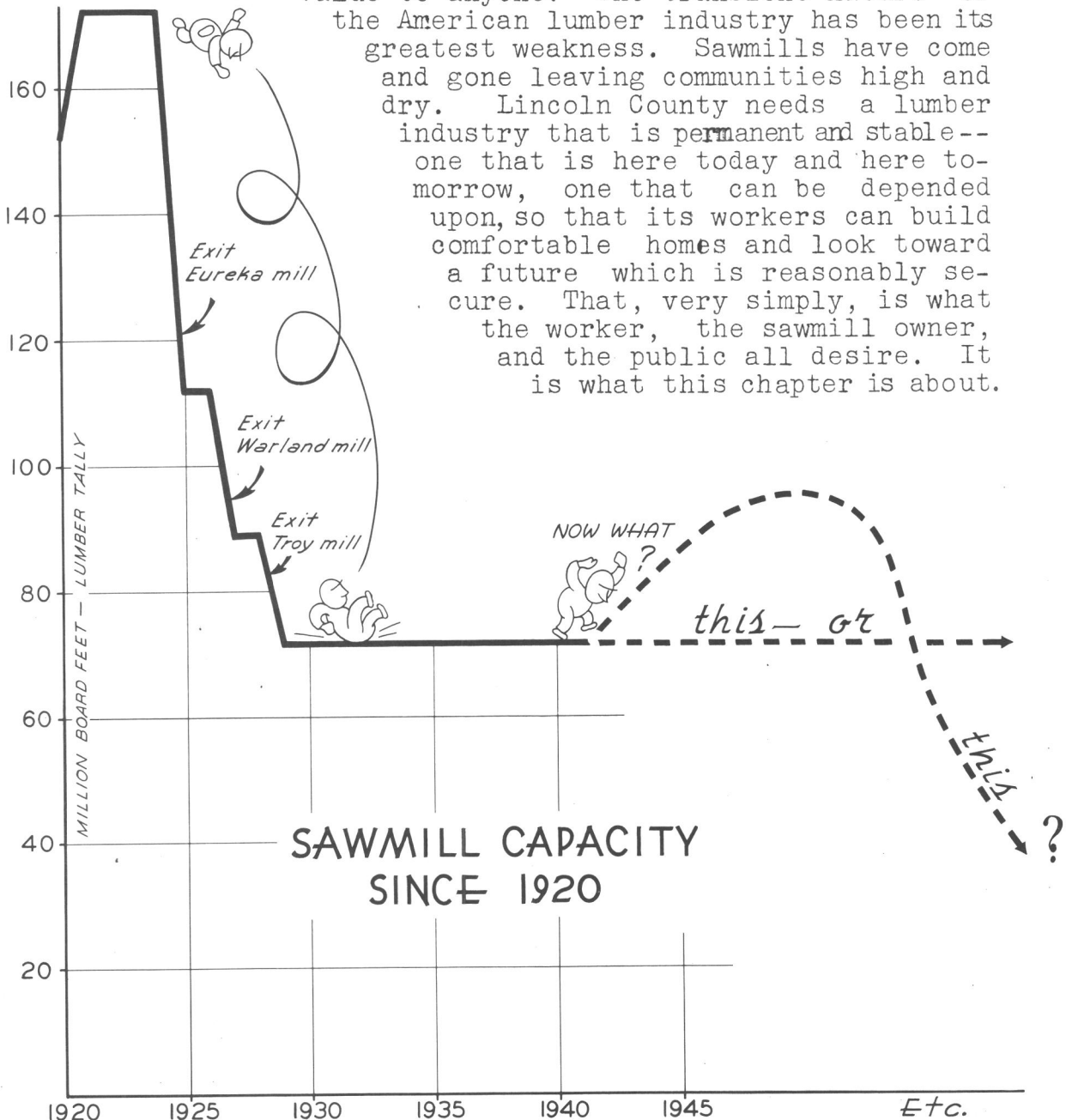
Some of the things which may be done will become clearer after the following chapters are read. In them an attempt has been made to analyze the factors affecting the future of Lincoln County as it depends on trees. This analysis is based on the conviction that the most has not been made of the Lincoln County resources--that this can be a much better place to live, if the county takes advantage of its opportunities.

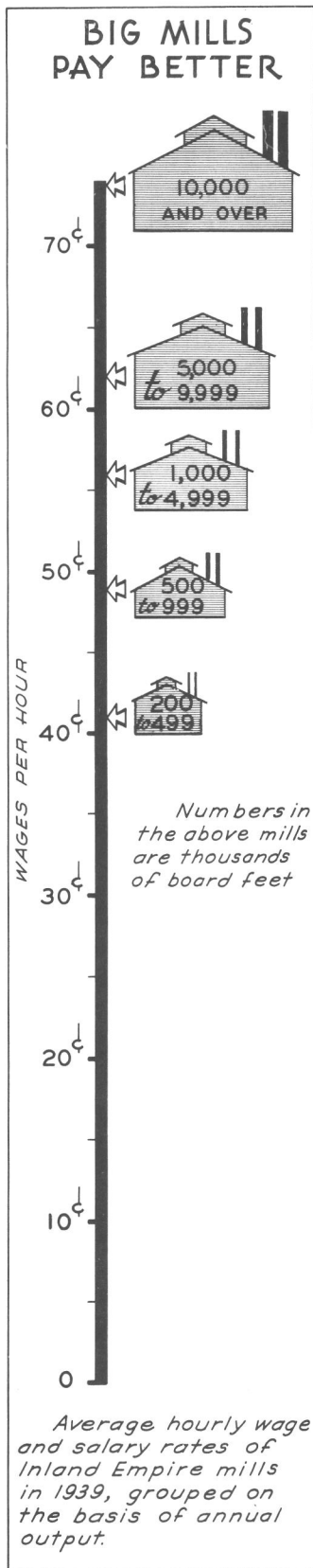
THE LUMBER INDUSTRY

A prosperous future for the county depends, more than anything else, on the success in stabilizing and expanding lumbering and associated enterprises.

Silent sawmills with gaping, empty windows are of little value to anyone. The transient nature of the American lumber industry has been its greatest weakness. Sawmills have come and gone leaving communities high and dry. Lincoln County needs a lumber industry that is permanent and stable--

one that is here today and here tomorrow, one that can be depended upon, so that its workers can build comfortable homes and look toward a future which is reasonably secure. That, very simply, is what the worker, the sawmill owner, and the public all desire. It is what this chapter is about.





The subject can be divided into three general parts: What kind of an industry is wanted? How large an industry can the forest support? What can be done to get the right kind and the right size?

What Kind of an Industry

This is primarily a matter of size of sawmill. Should there be one or two large plants, or should the timber be spread among half a dozen or several dozen smaller mills? It should be understood that this question involves only that portion of the industry producing lumber for the commercial market. The tie mills, which cut a special product and are a special problem, are excluded and will be discussed separately in the following chapter.

Mill size is important because it has been demonstrated that it has something to do with the value of the lumber industry to a community. Past experience shows that the large sawmill is the most desirable when the resource and the market are adequate. The major "talking points" of the small mill are: more people can become sawmill operators, it is easily moved, and ordinarily it has low overhead costs. Offsetting these advantages, however, are a number of factors. For the working man there is the matter of wages. The chart on this page indicates the relationship between hourly wage rates and mill size in the Inland Empire. In 1939, the sawmills producing 10 million board feet or more each, paid 80 percent more per hour than those plants producing from two hundred thousand to one-half million board feet. One has only to compare the wages and working conditions in the big mills with those of the tie mills to check this for himself. There are insufficient data to make a

comparison possible between mills producing 10 million feet and those with outputs above 25 million board feet yearly. In general, though, the larger plants enjoy the following advantages to a greater degree. Large companies are better financed on the average. This enables them to ride through hard times with greater ease. They are more stable, more dependable. Large mills have better marketing facilities. This is important because the principal "head-ache" of the lumber industry in this region is not in producing boards but rather in selling them. Large mills are usually in a better position to carry on a high degree of manufacture--make doors instead of just boards, glue loose knots to raise the quality of lumber, and so on. Thus the large mill makes it possible to provide MORE work at HIGHER wages.

It should not be assumed that the purpose of the preceding evidence is to prove that there should be no small sawmills cutting boards in Lincoln County. There is a place and a need for the small sawmill. Because of its location certain timber can undoubtedly be handled more advantageously by small mills. Small mills operated cooperatively can produce cheap lumber for local consumption without disadvantage to the community. There are, undoubtedly, other equally valid reasons applying to particular situations. However, the evidence seems to indicate that the big sawmill is by far the most desirable where local conditions permit its economical and continuous operation.

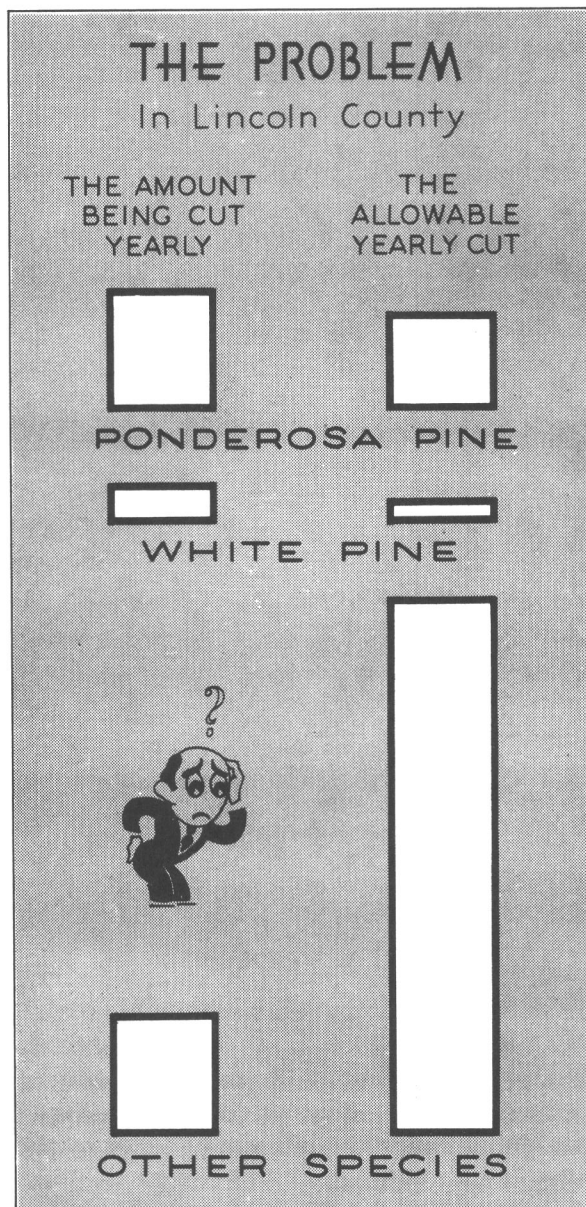
How Large an Industry

How many big mills can the forests of Lincoln County support permanently? That all depends.

The collapse of half of the lumber industry during the twenties did not come about because the timber supply as a whole was approaching exhaustion. Even today there is an enormous reservoir of saw timber. The lumber production of 1923 was probably only a little higher than could have been sustained indefinitely as far as the total timber supply is concerned.

Limited markets rather than limited timber supply must be blamed for what happened. Other reasons may have been given when the mills at Eureka, Warland, and Troy shut down. But if a poor market was not the direct cause in these cases, it is at least the reason why other large mills have not been established in their places.

The chart on page 3 shows that more than half (53 percent)



In board feet, log scale, the actual figures are:

	PRESENT ANNUAL CUT	ALLOWABLE ANNUAL CUT
P. pine	23,300,000	18,800,000
W. pine	7,700,000	5,100,000
Other	<u>23,600,000</u>	<u>103,500,000</u>
Total	54,600,000	127,400,000

of the saw timber in saw-timber stands is larch and Douglas-fir. White pine and ponderosa pine together total to only 26 percent. During the boom days larch and Douglas-fir were likewise the mainstays of the lumber cut. In 1923, 70 percent of the output of the four big mills (Libby, Eureka, Warland, and Troy) was larch and Douglas-fir, and 30 percent was ponderosa pine and white pine.

Undoubtedly, much of this lumber went to build up eastern Montana which was enjoying a great agricultural expansion during the first twenty years of the century. The bottom fell out of this market, however, with the advent of the dry years and the post-war farm problems. About the same time, the fir and larch in the easy logging chances began to get scarce and logging costs headed upwards. Then, also, during the last decade and a half it appears that the competitive disadvantage of Inland Empire lumber in relation to that from other regions has increased. The result has been that a very much smaller proportion of the present lumber cut is larch and Douglas-fir. This trend is directly tied to the relative

values of the several species. White pine and ponderosa pine are first-class softwoods and are rated higher than larch and Douglas-fir in the eyes of the consumer. They draw prices which are good enough to enable the producer to compete with other regions and still operate in the black. Prices of larch and Douglas-fir, unfortunately, are not that high. These species are now confined to a more limited market.

Because the outlet for larch and Douglas-fir and the other secondary species has shrunk, the mills of the Inland Empire have had to increase their production of pines in order to have a large enough output for profitable operation. The lumber cut of Lincoln County today is very different than in 1923. In 1940, 74 percent of the cut of the Libby mill was white pine and ponderosa pine and 18 percent, larch and Douglas-fir. This is exactly the reverse of the situation for the four mills 17 years ago and has resulted in an overcut of white pine and ponderosa pine from the forests of the county. Just how much these species are being overcut is shown in the chart on the preceding page which compares the actual cutting drain for all timber products, (lumber, fuelwood, fenceposts, etc.)^o for a recent period with the so-called "allowable cut." This "allowable cut" is the maximum production which the forests could supply year after year indefinitely. It will be noted that the production of both ponderosa pine and white pine exceeds the "allowable cut" by several million board feet. An estimate of the "allowable cut" of other species depends on how much of the area is considered loggable. In any case, as the chart shows, there is plenty of room for expansion in these species. It should be apparent that there is little hope of sustaining any larger industry than at present unless the normal market for the secondary species greatly improves. To enlarge the lumber industry at the cost of increased pine production would very likely be a catastrophe, for to increase the cut of these two species now would mean lean years later on.

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If the slate could be wiped clean, one could say, "Let's put a sawmill here, one here, and one here. These are the most logical spots at which to mill the timber in Lincoln County, and therefore they are the places where we the people want forest communities to develop." Unfortunately, there are some facts which cannot be wiped away. At one

^o Lumber for the years 1935-1940, inclusive. Other products for various years generally representative of the period 1925-1934.

time, there were four big mills. Three are gone. The reasons why the plant at Libby should have been the one to last are unimportant. The unerasable fact is that it is still operating and will most likely continue to operate as long as timber can be had in sufficient quantities. With markets for the other species as they have been, all or practically all of the pine which can be grown in Lincoln County will be required to keep this one plant running at a profitable scale. Another fact is that a community depends on this mill for its existence. If anything has been learned from past experience, it is that every effort should be made to safeguard the homes now dependent upon lumbering for livelihood. Most of these homes depend upon the Libby mill, and stabilizing its future operation therefore becomes a means to an end. The paramount object in this case is not to continue a particular company in existence but to prevent a source of employment from drying up.

Inasmuch as the timber in Lincoln County belongs to several owners, there is nothing to prevent another medium-size or large mill from being constructed here. This is a particularly real possibility while lumber prices are at the present high levels. To operate, this mill would have to lean heavily on the pines. This would mean a very heavy overcut of the pines. It would mean that some time in the future there would be years of reduced production and reduced employment. It might mean the eventual freezing out of the existing milling capacity and great economic hardship for Libby. The loss would be felt in another way. As an established concern with its investments in plant already made, its market contacts secured, the J. Neils Company is in the best position to make more work by further remanufacturing rough lumber. These extra jobs would be lost if this mill were to close.

The whole matter may be summed up like this: The situation as it stands is one which can be brought under control because the demand for timber is not far out of line with the ability of the forests to produce it, and because one mill is easier to control than two or three. If the milling capacity is increased, the most likely possibility is a scramble for timber with tomorrow's timber being cut today. As in every such case the chief casualty will be--the people.

Maintaining the Right Kind and Size of Industry

As the principal forest land manager in the county and one seriously concerned with finding a practical solution to the lumber industry problem, the Forest Service has drafted

a plan known as the Kootenai Timber Management Plan. This plan is not just for the national forest but embraces all of the public forest land and all of the private forest land within a 2.3-million-acre area known as the Kootenai Management unit. This unit differs somewhat from Lincoln County. It includes roughly 60 thousand acres of commercial land in the state of Idaho and in Flathead County-- areas which are logically tributary to Lincoln County mills, and it excludes a somewhat larger acreage in Lincoln County which is not (chiefly Pleasant Valley in the southwest corner). For reasons already enumerated, the plan is predicated on maintaining the existing big mill. It is believed that if the program recommended in this plan can be carried through, a stabilized forest industry can be achieved with the least hardship and greatest benefit to all.

Here in brief are some of the main facts which the management plan must take into account:

1. The Libby sawmill is consuming more pine annually than can be permanently produced in this locality--35,600,000 board feet log scale^o (1935-1940) as compared with an "allowable cut" of 22,300,000 board feet (Forest Survey estimate).
2. However, during the period 1935-1940 this mill obtained an average of 5,500,000 board feet of pine from outside the Kootenai unit in Idaho and in Sanders and Flathead Counties, Montana. If logs can be obtained from these sources in the future, the Libby mill can continue to operate on a bigger scale than would otherwise be possible. There is no reason to expect that this flow of logs will decrease.

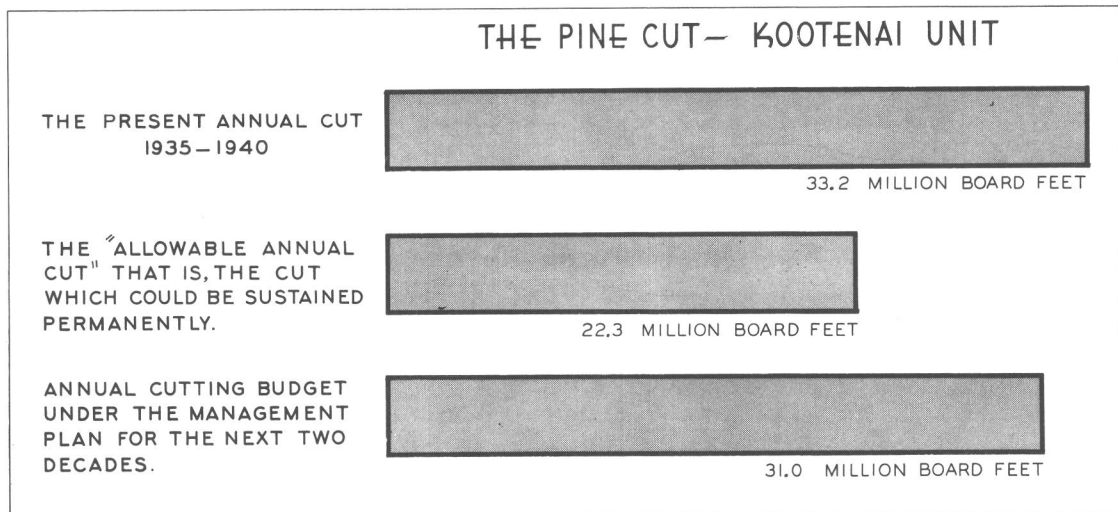
3. On the other hand, some pine logs are bought in

^o The volume estimated in the tree or in the log is called "log scale." The measured volume of the boards, planks, and timbers produced is "lumber tally." The two measurements are seldom the same because the quantity of material which can be obtained from any log depends on the product being produced, the thickness of the sawcut, the size of the slabs, and other factors. On the average about one-fifth more lumber is cut from a given quantity of logs than is estimated in the log scale measurements. The distinction between lumber tally and log scale is unimportant except to the technical reader interested in following the figures closely.

this area by outside mills, some pine is sawed in the small local mills, and some pine is cut for other purposes. These three types of drain amount to approximately 3 million board feet per year.

4. The net result is that the present cut of ponderosa pine and white pine in the Kootenai unit exceeds the "allowable cut" by about 11 million board feet. Furthermore, if the present milling capacity in the unit is to be maintained, the present overcut of pine will have to be continued for a while. The other species are not valuable enough for the present.
5. However, there are signs that the market situation for secondary species may eventually change for the better in some respects. The prospect for a greater demand and higher price for spruce is fairly bright. In other words, while spruce cannot take the place of pine in the cut now, the chances are that it will in 5, 10, or 20 years.

The Kootenai Management Plan proposes an annual cut of 18 million board feet of ponderosa pine for the next fifty years from the lands of all owners. For fifty years after that, it is expected that the annual cut of this species will have to be reduced to 11 million board feet. Estimates by the Forest Survey are more optimistic and contemplate that it will not be necessary to reduce the ponderosa pine cut this much after the first fifty years. Which estimate is right will depend on the extent to which areas and trees



not now loggable become loggable and what kind of a management job can be done.

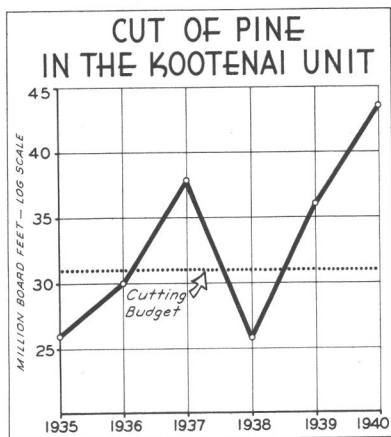
For white pine, the management plan proposes a cut of 13 million board feet yearly, which is almost two and one-half times the "allowable cut." The principal reason for concentrating so heavily on the white pine is that these stands are very old and deteriorating rapidly. After the first twenty years, the cut will drop to 2 million board feet yearly and in another thirty years will rise to 4 million board feet.

While the production of the pines is being curtailed in the coming years, the hopes and plans call for an expansion in the spruce cut from the recent average of 3 million board feet yearly to 12 million board feet in 20 years. It is not unreasonable to expect also a small increase in the cut of other species in the same period.

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The Kootenai Timber Management Plan is not intended to be a once-and-for-all solution. Rather it is intended to be flexible and subject to modification as conditions change. For one thing, it is obvious that spruce is not going to take on a greatly increased value exactly twenty years from now--no sooner or no later. Any improvement in value is going to be gradual. If the production of spruce can be increased during the first twenty-year period, it would seem logical to slack up on the pine correspondingly. Any major change in the outlook for secondary species might justify the establishment of new milling capacity in the county and a modification of the basic plan just outlined.

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While the pine cut from the unit over a six-year period averaged 33,200,000 board feet compared with a management plan budget figure of 31,000,000, in individual years the production has been much higher as is shown in the chart on this page. It is perfectly proper to have a large drain in the good years to offset the slumps of the poor ones as long as the average for longer periods is not too high. In the last four years for which data are available, the total pine drain averaged almost 36,000,000

board feet. So, before too long, there must be a compensating curtailment. To keep the long-time pine cut within the cutting budget requires the full cooperation of the mill operators, but such cooperation should be assured before any part of the plan is put into motion.

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It is going to be far harder to execute the Kootenai Management Plan than it was to conceive it. The one main element which sooner or later may throw a hitch into the plans is the fact that the timber is in several ownerships. The stumpage which must be depended upon to run the Libby mill in the coming years is owned by the Federal Government in the national forests, by the Anaconda Copper Mining Company, the State, the Northern Pacific Railway, and others. If the management plan is to be carried through in spite of the diverse ownership, a new high in cooperation will have to be reached. Fortunately, the major landholders have informally indicated a disposition to cooperate.

According to the plan, more than half of the pine cut during the first twenty years will be from national forest land. Despite the fact that the management plan is largely the handiwork of the Forest Service, this timber cannot be earmarked for any milling establishment. It must be sold by competitive bid. If national forest timber were sold merely to bring the highest price, competitive bidding would be quite satisfactory. But there are some things more important than price, so the results of a competitive sale may run counter to the best long-time interest of the county. Every time national forest timber is auctioned, other individuals may participate for the purpose of acquiring timber for a new mill in Lincoln County. In the event such an attempt is successful, the Kootenai Management Plan may be wrecked and irreparable harm done to the community.

To stave off the chances of such a situation, two bills already before Congress would empower the Forest Service to make noncompetitive sales--sales in which the timber is disposed of to a predetermined purchaser within a sustained-yield unit. This places more responsibility upon the administrators, but the way it is now the Forest Service is asked to manage this timber for the best public interest, but lacks the discretionary powers absolutely necessary to make this management best serve people and communities. If the people are kept fully informed, if there is opportunity for public hearings, if the price is fair, if rules are drafted to keep the cards on top of the table, we the people could then be assured that noncompetitive sales would not

lead to unfair practices.

The situation with regard to the timber in the Fisher River drainage represents another problem. The Anaconda Copper Mining Company owns the principal block of ponderosa pine in this area. In the Kootenai Management Plan it is proposed that this timber be milled at Libby and that it bear an annual cut of around 6 million board feet of ponderosa pine during the first 50-year period. Actually there is more timber involved than this, for whoever logs the Anaconda Copper Mining Company's holdings will get a considerable block of pine from the interlocked holdings of other owners. The least hardship to expect in the event the Fisher River timber becomes unavailable to the Libby mill would be a very much smaller Libby industry. But it has been emphasized that loss of the Fisher River timber might result in the closing of this mill.

During the past few years when the lumber industry was on the bottom looking up, the chances were not very great that another mill would step in and purchase this timber. With the present war-improved lumber prices, however, the picture has changed. There is far greater likelihood of the timber being purchased, and an outside mill moving in to liquidate it. It would certainly appear to be advantageous to the people of Lincoln County to have the Fisher River timber of the Anaconda Copper Mining Company milled in conformity with the management plan. It should be remembered that the accomplishment of this is more than a transaction between two companies or a three-cornered arrangement between two companies and a public agency. The people of Lincoln County have a big stake in what happens. For that reason, they should take an active part in working out a tolerable solution.

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If the Kootenai Plan becomes an accomplished fact, it will be a case of the public cooperating with a private company or companies because it is to the public's best interest to do so. Since the situation would no longer be one of unrestricted competition with the "Devil-take-the-hindmost," any concern benefiting to the extent of greater stability and security also assumes increased responsibilities. This concern must manage its affairs with a greater consciousness of the people's interest. It must be willing to make whatever reasonable guarantees and commitments are necessary to safeguard the public welfare.

The Possibilities for Industrial Advancement

So far in this chapter we have discussed primarily a defensive program of maintaining the lumber industry on a slightly smaller scale than at present. But that is not necessarily the best that Lincoln County can look forward to--not if Lincoln County shares in the dynamic growth the planners foresee for the Northwest--not if some of the handicaps holding this region down can be overcome. Just how low or high the ceiling will be, no one can say. Much depends on how vigorously the economic problems of today are grappled with.

It is a paradox that over-utilization should be such a problem on much of the forest land in the United States while here the problem is how to break the shackles which hold down production of the secondary species. A big factor in the explanation is the great distance of this region from the main markets--not the actual distance but the artificial distance set by freight rates. A thorough study of the freight rate structure as it affects the development of the resources in the various regions might reveal the desirability of rate adjustments which would remove some of the handicaps weighting down Montana's secondary species.

For one reason or another, the two pulp mills proposed for Lincoln County in the early days were never built. In the entire Inland Empire there is only the one pulp and paper plant located at Spokane, Washington. It is claimed that in normal times the market within the competitive range of the Inland Empire is barely big enough to support the Spokane plant let alone another, in Lincoln County or anywhere else in the region. In any case, as spruce is the only one of the pulping woods found in abundance in this county, the establishment of a pulp mill locally would require the use of spruce already shown to be necessary for maintaining a stable lumber industry. Pulping methods are being developed for other species so this factor, accompanied by a change in the competitive market situation, might at any time alter the outlook.

The expanding use of plywood in this nation as compared with the declining consumption of lumber has been one of the outstanding contrasts of the past few years. Plywood is steadily forcing itself into new fields and new uses. E. F. Rapraeger, formerly of the Northern Rocky Mountain Forest and Range Experiment Station, has been primarily responsible for recent tests of larch for plywood. He regards the results of the limited study to date as eminently satisfactory and gives rise to the hope that a plywood

industry may some day be built around larch. Situated as it is in the midst of a reservoir of old larch timber, no better location for a plant could be found than Lincoln County. The advantages possessed by the West Coast plywood industry probably preclude any successful competition of larch plywood from this region for the present, but the prospects are more favorable for the future.

Today, great industries are growing out of discoveries in the chemical laboratory. The chemist has already greatly changed our way of life with rayons, cellophanes, plastic radio cabinets, and so on for a long list. The indications are that this list will be greatly lengthened in the future. It is pure speculation to attempt to forecast the effects of this development on one small locality. However, in the larch timber again, Lincoln County has a raw material of great chemical possibilities. Arabogalactan, a form of gum, is the principal extractive in which larch is rich. Some years ago, a plant operated in Eureka which made mucic acid from this gum. The acid was used in manufacturing baking powder, effervescent drinks, and various pharmaceutical preparations. Ethyl alcohol, a valuable product, may be derived from arabogalactan and the wood itself. An analysis some years ago showed that at least 33 gallons of alcohol could be obtained per ton of dry larch wood. This is just about 10 gallons per ton better than any other tree studied at that time.

Dr. Edwin C. Jahn, formerly wood chemist at the University of Idaho,^o has the following to say about arabogalactan: "An intensive economic survey should be carried out on the possibility of manufacturing products from arabogalactan in conjunction with other products from western larch such as lumber, tannins, and pulp or insulating material."

Lincoln County contains between one-fifth and one-sixth of the larch saw timber in the United States.

^o Report of the Pacific Northwest Chemurgic Conference with Washington State Planning Council, Spokane, Washington, March 22-23, 1937.

THE TIE MILLS

The tie business is desirable because it affords an outlet for larch and Douglas-fir. From the standpoint of the kind of living it has furnished, the industry has not been so desirable. This is the principal fault to be corrected.

The tie business is a special wing of the lumber industry, a wing dominated in this region by the very small mill generally run on a shoestring but also generally quite efficient in producing ties. The regular lumber companies sawing boards and plank for the commercial market have been largely unable to compete in this field because of heavy overhead and higher operating costs.

The production of ties has fluctuated according to economic conditions. In 1938, the portable mills scattered throughout the woods sawed 117,000 ties. The output jumped to 293,000 in 1940. Most of the ties are sold to the Great Northern Railroad.

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During the past ten years the industry has not, for the most part, furnished a base for an acceptable standard of living. The wages paid have been very much lower than those paid by the larger sawmills, principally because the price of ties laid down at the railroad has been too low. That prices have not been higher is probably mainly attributable to the fact that one needs but little capital and machinery to start up as a tie mill operator. When there is a general shortage of work, many can be found who are willing to try producing ties at almost any price.

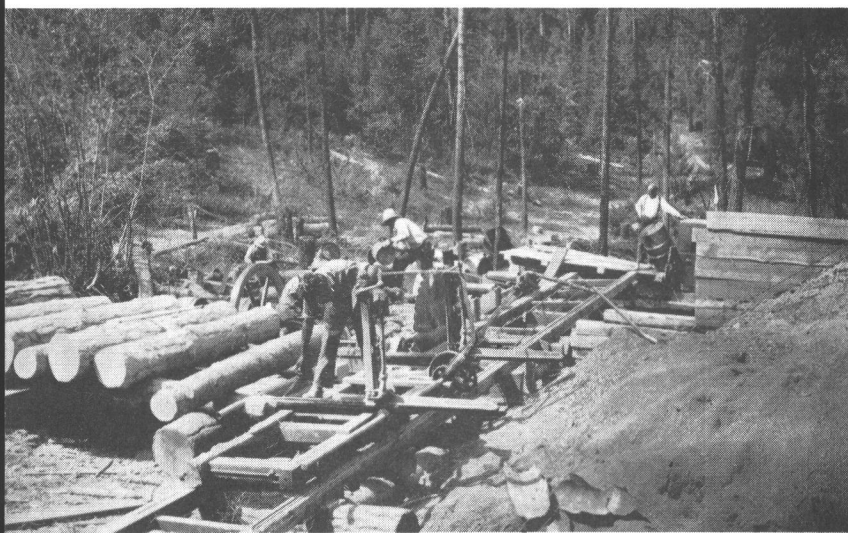
What is an adequate average price? Not enough information is available to answer this question definitely, but it has been calculated that an efficient tie mill producing 400 ties daily would have to receive 61 cents^o per tie to operate profitably if the following wages were paid. This scale

^o It is assumed that no side lumber is sold. The figure of 61 cents per tie includes all operating costs, plus \$1.50 per thousand board feet for stumpage, plus a 10-percent margin for risk and profit.

is for an 8-hour day:

Sawyer (mill)	\$8.00
Other mill workers	\$5.00
Skidders and swampers	\$5.00
Sawyers (woods)	\$5.50

The above wage scale may be regarded as the minimum necessary to provide a satisfactory standard of living in normal times. In times of inflated prices, it would probably be below this minimum. At any rate, the average selling price for ties has been much less than 61 cents until recently (October 15, 1941). Available records indicate that for 10 years prior to August 1941 the highest quoted price for top grade ties in this locality was 45 cents.



Above.-In efficient hands these little mills can produce a surprising number of ties in a day.

Below.-Four-tenths of the average tree goes into slabs and sawdust.



As this is written, the average tie price is considerably above 61 cents due to the war emergency. If the selling price for ties does not continue to remain at or above the level necessary for efficient operators to pay minimum wages, it would seem that Lincoln County is better off without this industry. The inefficient operator who cannot pay fair wages when the price is at such a level is a doubtful asset to the community.

It has been suggested that the ideal set-up would be to have a few semi-permanent tie mills situated at strategic points in the county. It would be possible to operate these mills on a seasonal basis dovetailing the operations with Christmas tree production, farming, and other

types of work. Before a stable tie industry can be established, it will be necessary to reduce the wide fluctuation in the demand for ties.

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Ordinarily no lumber is cut in addition to the ties as the market for this lumber is limited. As a consequence, about one-fifth of the usable part of the tree is contained in the thick slabs, which are either burned in the woods or sold for fuel. Being from the outer portions of the tree, these slabs contain the clearest and best lumber. Of course, the slabs are not actually wasted when they can be sold for fuel, which is not always.

One outstanding opportunity for increasing the income of the tie mill industry is by letting less of this side lumber go to the slab pile. First, markets must be found for the lumber. Possibly the larger lumber companies and the railroads might help in marketing. The trouble is that boards produced by tie mills are generally poorly sawed. Improved sawing would make the selling easier.

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The tie mill has more of a clean-up problem than the ordinary logging operation. Besides the usual logging debris, there are numerous sawdust piles, and piles of unsold slabs to create quite a mess as far as fire hazard is concerned. Formerly, 15 cents a thousand board feet was spent in reducing the hazard of this debris or "slash." Now the State law provides that 25 cents per thousand board feet be spent in reducing the hazard of this debris or slash. In addition, a \$2 State license is required for each tie mill setting. The purpose of this license is to defray the cost of disposing of sawmill refuse. In general, the fire hazard reduction work following tie mill operations has not been satisfactory.

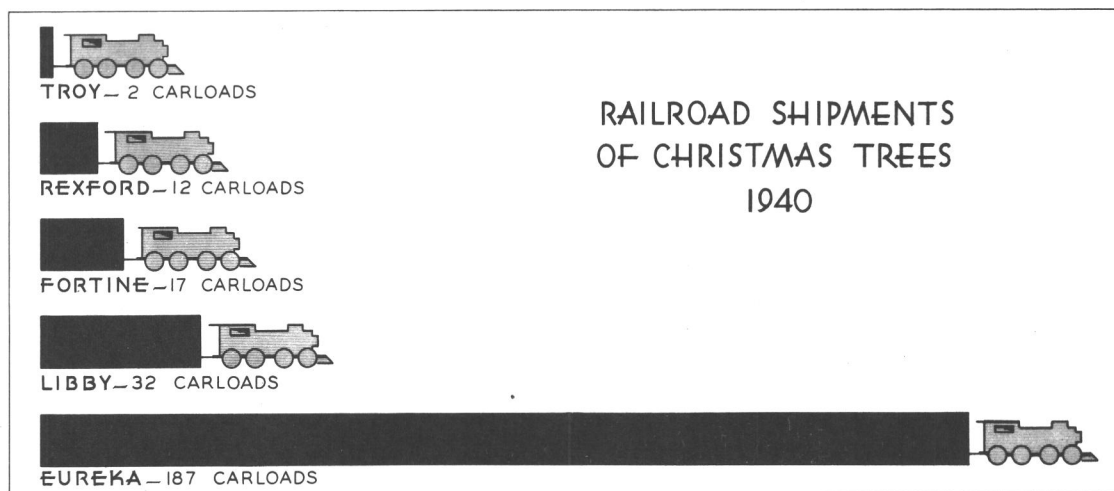
Because it does afford an outlet for larch and Douglas-fir timber, which this county has in abundance, the tie industry is certainly desirable from a utilization standpoint. Yet the tie is a relatively low-value product. For that reason, it would seem desirable wherever possible not to convert the very large trees with much clear wood into ties. Part of the hope for the future lies in using these trees for lumber or veneer. Stands where the larch-fir timber is large and of high quality should not be opened to the tie mill. Furthermore, the tie areas should be managed and cut in such a manner that they will continue to produce ties in abundance.

THE CHRISTMAS TREE INDUSTRY

One of the brighter spots in the economy of the county is the Christmas tree industry. Steps should be taken now to assure that there will be just as large and valuable an industry as possible in 10, 20, and 40 years.

In two respects, at least, the Christmas tree business is an ideal industry. Most other local outdoor work is concentrated in the summer and has created the problem of seasonal peaks and slumps in employment. Christmas tree cutting supplements the other work rather than adding to the seasonal peaks, since it does not begin until late fall. Then also by cutting Christmas trees, revenues are received from forest land at shorter intervals and over a longer period than if lumber or cross ties alone were raised. It is probably a fairly safe statement that acre for acre, Christmas trees represent the most valuable forest crop that can be grown in Lincoln County.

The problem, of course, is one of maintaining the industry--of insuring that suitable trees will always be available in sufficient quantities. This does not necessarily involve, as one might think, the curtailment of production below the average level for recent years. As a matter of fact, there is reason to believe that an even larger cut might be maintained in the future. This, of course, is just the belief of some foresters, as there are still too few data available to know whether the present cut is too large or too small.



What will be needed is careful management. The trees should be cut in such a manner that the ones left behind will develop the proper shape, so that new trees will fill in the open spaces, and useless trees are not left occupying valuable space. In other words, although the problem is complicated, good Christmas tree management requires the same kind of care and forethought as is applied to a successful carrot patch.

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There are three sure-fire ways of reducing future Christmas tree yields from any area. These are: to cut too slowly or to cut too rapidly or to follow unsound cutting practice. The evil of too slow cutting arises from the fact that the stand as a whole grows too large for Christmas trees before it is cut. Such under-utilization as there is is probably found mainly on national forest land. The charge has been made that the cutting regulations of the Forest Service have been designed to prevent overcutting rather than to perpetuate the largest possible Christmas tree production on the national forests. If this is true, it has arisen from the time-ingrained philosophy that every tree is a potential sawlog. The Forest Service in general is just beginning to appreciate the possibilities of a permanent Christmas tree industry. This organization has only recently begun to take the lead in developing sound Christmas tree practice and a stable industry. Areas for the experimental cutting of Christmas trees have lately been set aside on the national forests of northwestern Montana.

On the other hand, it is said that some private operators are stripping the trees off faster than they can be replaced. And although the importance of careful cutting is generally recognized, there are those guilty of wasteful cutting practice.

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To the many people who shared the \$130,000 which Christmas trees brought in 1940, the necessity for action to maintain the biggest and most profitable business is readily apparent.

What can be done constructively to meet the situation can be told in a few paragraphs:

First, the producers should cooperate. They should cooperate to obtain uniform grading rules to prevent waste. They should cooperate to bargain most effectively with the people

buying their trees and thus receive the very best prices. They should cooperate to work out good Christmas tree management methods and thereby obtain more and better trees. With each producer going his own way as at present, progress is slow--too slow.

Secondly, the Forest Service should take more aggressive action. As a landowner, it should join with the private producers in planning orderly cutting. With its technical knowledge and research facilities the Forest Service should take the leadership in developing and promoting basic practices for handling areas for continuous Christmas tree production. This is all the more important because Christmas trees are not raised in two, three, or four years. It may require as long as 30 years to raise the larger trees.

Thirdly, an intensive inventory of the resource is necessary. How many acres of public and private land are suitable for growing Christmas trees? What areas now being cut should be taken out of production? How many trees can be produced on a permanent basis? Facts like these must be known before either private cooperators or the Forest Service can do much intelligent planning.

Lincoln County earns a handy penny satisfying a yuletide demand. Foresters looking to the future feel that the industry will continue to prosper or become a "has been," depending on whether the producers plan or just drift along.

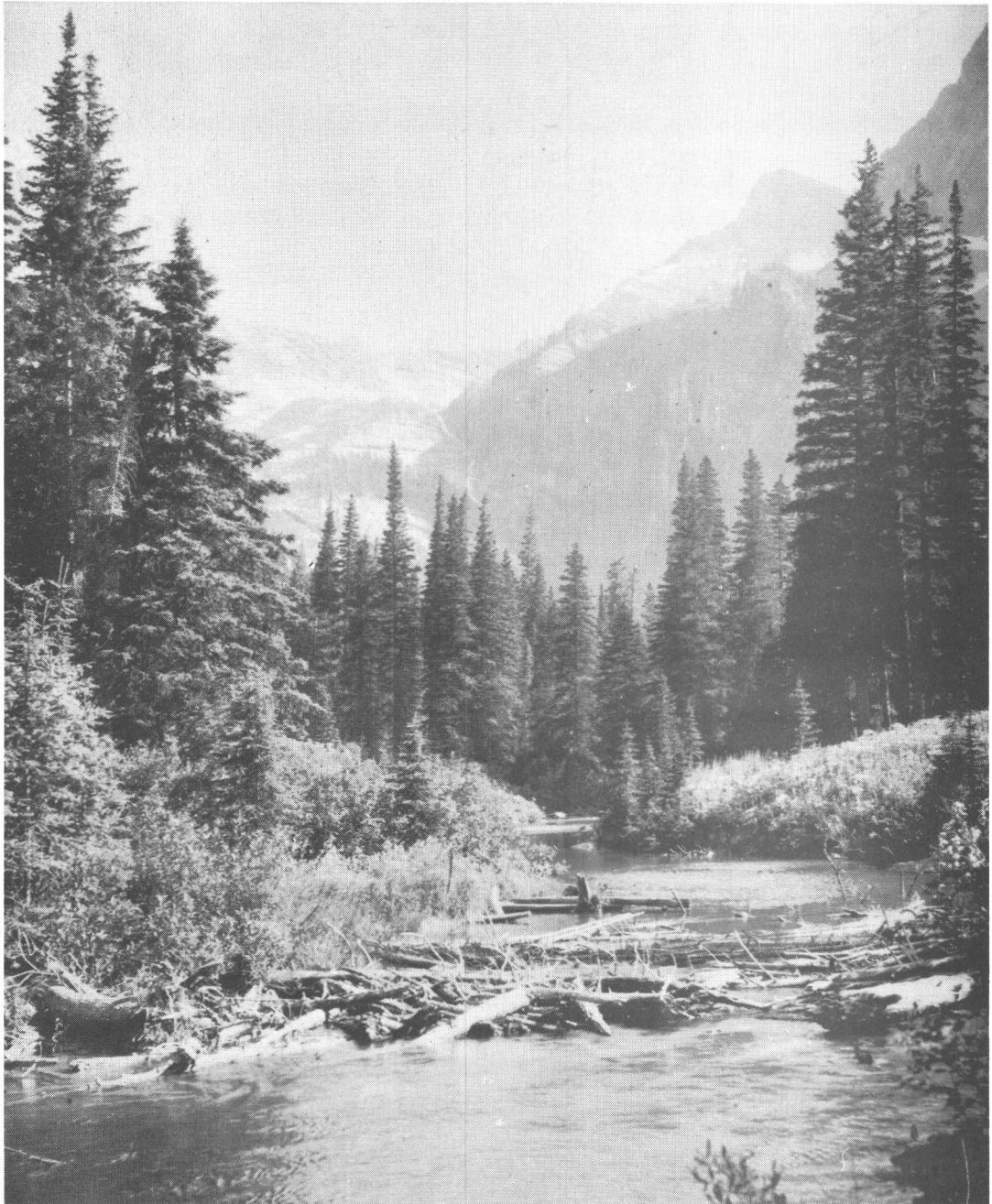
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The Christmas tree production records in this report were compiled by E. F. Rapraeger, formerly of the Northern Rocky Mountain Forest and Range Experiment Station.

The conclusions in this chapter are largely based on recommendations by Stanford H. Larson, forest ranger, whose district lies in the center of the "Christmas tree capitol."

RECREATIONAL DEVELOPMENT

Recreation offers a real opportunity for increasing the income of Lincoln County. To make the most of this opportunity requires careful preservation and development of scenic assets.



Mountains, and mountain scenery, and fishing streams galore



Above: - Small clearings and neat log buildings with split shake roofs take one back to pioneer days.

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Below: - Tiny lakes surrounded by unbroken forest offer a pleasant change from the crowded city.



It is not always easy to see the dollar sign in a thing of beauty, yet there is money in outstanding attractiveness, if it is handled properly. Lincoln County has a wealth of natural beauty. To cash in fully on this asset requires, first, extreme care to preserve it, then proper development of the facilities to serve recreationists coupled with first-class advertising. Many people have not learned to think of recreation as an industry, but it is exactly that. The Highway Commission tells us that more than one million people drove into Montana in 1939 and spent 23 million dollars. This does not include the money left by those who came by train or the vacation expenditures of Montanans, but even so, this 23 million dollars is seven times the payroll of the lumber industry in the same year, and four times the total value of lumber produced in the State.

So far, Lincoln County has not obtained a very large slice of the recreation business. There are several reasons for this situation, but probably most important is the fact that tourists generally shy away from rough roads, preferring smooth asphalt instead. As soon as the portion of U. S. Highway 2 between Troy, Montana, and Bonners Ferry, Idaho, is brought up to the standard of the road east of Troy, there is every reason to expect that the summer travel will increase. One authority on outdoor recreation lists seven magnets which draw the vacationist westward:

1. Natural beauty
2. A change of scenery
3. Elbow room
4. "Westernness"
5. Forest, streams, lakes, and mountains even
if their beauty is not outstanding
6. Primitiveness
7. Wild life to see and fish to catch

Lincoln County has all of these things in generous quantities making an indescribable natural charm, which lives in the memory.

If these points are all boiled down, it will be discovered that the chief attribute of this locality is its "naturalness." However, naturalness tends to disappear when indiscriminate settlement takes place, when timber is logged without regard to its location, when bright orange gas stations begin to spring up along the highway. To prevent the recreation possibilities from being reduced, to fit recreation in with the other industries, forethought and planning are necessary. Following are a few of the problems which must be considered.

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Probably the most important attraction in Lincoln County from a tourist standpoint is the scenery which can be viewed from U. S. Highway Number 2--the mountains, lakes, and forests. The quality of this scenery can be greatly impaired if the fine stands of virgin timber along the highway are logged, if shacks spring up abreast the right-of-way in areas chiefly valuable for recreation. On the national forests the Forest Service is attempting to maintain "attractive and natural conditions in the landscape closely visible to the traveler" by establishing roadside zones. No commercial timber cutting is ordinarily allowed within a narrow strip on each side of main highways and recreation roads. This policy serves the scenic requirements of recreation, and at the same time permits the use of the bulk of the timber behind that screen for lumber production or any other purpose.

However, most of the land along this Federal highway is privately owned, and the private owner ordinarily has no incentive to limit the roadside settlement on his land or otherwise limit uses which may decrease the natural beauty. As a general rule, he is not in a position to capitalize on any recreational values he may preserve. In the case of a roadside area near Leonia this difficulty is being overcome. A strip of trees was left on each side of the highway by the owner, and this timber is now being acquired by the Forest Service through an exchange. To meet this very situation, the Federal Highway Act of 1940^o includes a section which reads in part as follows: ",..... Such construction likewise may include the purchase of such adjacent strips of land of limited width and primary importance for the preservation of the natural beauty through which highways are constructed....." Steps are being taken under the terms of this act to acquire privately owned land along Highway Number 2. Because of the high recreation value of the Thompson Lakes, it is deemed desirable for the public to also acquire the land around these lakes by one means or another.

The private property adjoining the highway may be divided into two classes, that part owned by the Anaconda Copper Mining Company and the Northern Pacific Railway and the part held by numerous other owners. These two large companies, which have extensive holdings in this area, have

° This same act provides for the expenditure of Federal funds for roadside beautification. The cuts and fills along a 5-mile strip in the vicinity of McGregor Lake in Flathead County are being covered with straw and peat and planted to grass as part of this program.

expressed an interest in the recreation program and a willingness to cooperate. For that reason, there is no pressing need for the public to immediately acquire their roadside lands. It is to be expected that the purchasing will be first concentrated on properties of small owners who are less financially able to hold land for long in an unused state.

There is no reason why the proposed program of public acquisition of roadside areas should conflict with worthwhile agricultural settlement. The current settlement along the highway in the vicinity of Libby is undoubtedly desirable. However, there are long stretches of highway along which agricultural values are absent or very low, and the recreational values, high. It is the settlement and abuse of these areas which should be avoided as much as possible.

At present, four public agencies are directly involved in the effort to preserve recreational values along U.S. Highway Number 2. These are: the Montana Highway Commission, the Montana Park Commission, the Federal Public Roads Administration, and the Forest Service.

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Any locality seriously considering the promotion of a recreational industry should ask itself whether it can render the quality of service desired by tourists. Are the eating places such that the traveler will later recall with pleasure an excellent trout dinner or thick, juicy steaks? Are the accommodations of a quality such as will make him wish to return? People take vacations to break away from their everyday lives and to obtain the maximum of enjoyment. He who will tarry awhile in Lincoln County will be seeking to escape the drabness of the cities. To the extent that he feels shabbily served in one way or another, he is not likely to feel impelled to return or to advertise this county's vacation attractions.

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FOR EXAMPLE....There are tourist camps--and tourist camps. A postcard mailed from the cabin above might read, "Will be a day late--staying over at a beautiful lake in"

From a cabin such as one of those below one could hardly expect more than, "Stayed in a tourist camp last night. We plan to make 500 miles tomorrow."



Preserving roadside beauty and providing adequate service are only two aspects of the recreation business. But they serve to emphasize that it takes more than a good through highway and beautiful scenery to start with, to reap the most from the vacation travel business. Business leaders, public agencies, and others concerned with recreation will have to cooperate and plan carefully, if Lincoln County is to be more than a place on the way to somewhere else, if it is to attract the greatest number of visitors in its own right.

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THE PROBLEM OF LAND SETTLEMENT

When people cannot earn enough to maintain a satisfactory standard of living plus a measure of security, they suffer themselves and are a burden on the rest of the community. The hope for the future lies in creating more opportunities at home and in re-establishing some of the unfortunates in places of greater opportunity.

Most of the people who took up land in Lincoln County and settled on it were hoping to make a satisfactory living from the country for themselves and their families. In spite of the fact that they have not asked for much, many of these settlers have not been able to get by satisfactorily. Some overestimated the ability of the localities of their choice to support them. Some had hard luck and a few were just not efficient enough. Then also, the life we live is not as simple as it once was. It is one thing to drive a horse and buggy while living on a stump ranch, and another thing to be able to afford a car which cannot be turned out to graze and requires the expenditure of much cash.

Nearly everyone has come to realize in recent years that when the neighbors down the road are having financial troubles, their situation indirectly works a hardship on the rest of the community also. This can be shown by examining the economics of an area where the opportunities for earning a living are scarce in relation to the number of residents. The Pinkham Community (school district 18) is probably a typical area of low-income possibilities. The table on the following page should be studied, as several significant comparisons are made between the Pinkham Community and the Yaak Community (school districts 23 and 24),^o which is on the whole in better financial condition. The Yaak Community is used as a yardstick in this case because it is similar in many respects to the Pinkham Community. In both, the principal habitation is in cleared valley bottoms surrounded by forests. In both, also, the local residents depend partly upon their own farm products and partly upon outside work on the national forests, on the highways, cutting Christmas trees, and so on. They are different to the extent that the Pinkham residents are much less able to earn

^o Most of the figures in this tabulation were obtained from the county offices.

	YAAK COMMUNITY	PINKHAM COMMUNITY
Acres in unit privately owned	12,473	5,047
Population 1940	177	89
Cultivated acres per person 1930 census	5.5	1.5
Total public assistance 1939°	\$2,182	\$4,487
Public assistance per capita 1939	\$12	\$50
Percent of resident population receiving public assistance 1939	16%	67%
Property tax levy per person 1939 (excluding property of the rail- road and other large companies)	\$9.90	\$6.90
1939 taxes delinquent on the above property in September 1940	22%	46%
Average number of years prop- erty is delinquent	2½	5
Percent of local tax base represented by pub- lic utilities and other large companies	76%	93%
Approximate proportion of grade school income derived from local property (excluding railroads and other large companies)	32%	8%

° Old age assistance, aid to children, work projects, general and direct relief, burials, medical aid and hospitalization.

a satisfactory income from the available sources and, therefore, require more public help. For example, four times as much public aid money was spent per capita in the Pinkham Community as on the Yaak area in 1939.

It will be noted that 76 percent of the tax base in the Yaak Community is made up of property of the public utilities and the other large companies. This is nearly in line with the average for the county as a whole, as 67 percent of the total county tax base for the year 1939 was made up of the property of four companies: the Great Northern Railway, the Northern Pacific Railway (on land), the Anaconda Copper Mining Company, and the J. Neils Company. The figure of 93 percent for the Pinkham Community is much above the county average. What it means to the county is just this: For every dollar of school money raised by the local people, \$9.60 comes from other sources. If every resident in the Pinkham Community were to move out and all small owners cease to pay taxes, to be sure a certain revenue would be lost to the county. But for every dollar of school money lost, \$9.60 from other sources would be released for use elsewhere in the county.°

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It would seem that the first thing to do would be to try to raise the relative earnings of low-income communities, and of the low-income families in any community. Whenever that can be done, the county as a whole will benefit. Most of the people in Lincoln County who live outside of towns may be divided into three groups: (1) Those who work principally in the woods, (2) those who are entirely supported by their own farms, and (3) those who rely partly on their farms and partly on outside forest work. Thus, the problem of increasing earning power is principally a forestry-agriculture one.

Agricultural agencies are working on the farm end by trying to increase the relative income from the farms of Montana. Land clearing to expand crop and pasture acreage is one way. Financial aid and advice are being given in clearing forest areas suitable for farming, in order that it may be done more quickly and cheaply. Marketing cooperatives have been formed to bring the highest prices for the farmers' products. Cooperative sawmills have been operated to furnish lumber for better homes, farm buildings, and so on. By these means, the relative income of the farmers is increased. Far from enough has been done along this line in Lincoln County.

° This does not include State funds which would all be lost if the migration were out of the county.



Farms such as this may require outside employment for supplementary income during the period in which land is being cleared and the operator becoming established. Eventually, however, many of these farms will become self-sufficient.

The forestry approach is to increase the amount of outside employment. Managing the Christmas tree industry and the tie industry offers means of making more of sources of employment already available. Expanding the recreation industry offers a means of creating new jobs. It seems clear that the industrial possibilities have not been exhausted in Lincoln County but how much more expansion will take place is, of course, impossible to say.

A number of men work for the Forest Service for a longer or shorter period in the summer--mostly shorter. Since most of this employment is concentrated in the growing season, there is only a limited opportunity to dovetail it with farming. Forest Service work and Christmas tree cutting supplement each other better. Principally because of finances, the national forest has not been able to provide enough work for its men. It seems obvious that if the Forest Service is to be able to call back year after year its trained men so important for effective fire protection, some means must be found of maintaining their standard of living at a satisfactory level.

Some families are so situated that no practicable amount of public help will make them self-supporting where they are. The income-producing capacities of the land on which they live and the industries in their localities are not sufficient. If such families are to enjoy better times, they must move to other areas, near or far, where new farms or new jobs will provide more income.

Certainly it would be desirable from a public standpoint to depopulate thinly settled areas with low income-producing capacity per person and high public expense. Until the present war emergency, the prospects of finding a place of greater opportunity were not very bright. It seemed wiser to suffer hardship at home than pull up stakes and drift into another predicament. The pick-up in industry has helped some, but the situation still lingers. The industrial growth of the Northwest which is taking place right now will perhaps absorb some of the load. Effort is being made to push the development of areas in Montana and the rest of the Northwest where farming can be profitably expanded and thus take care of many people. The Coulee Dam project is the biggest example of such an enterprise.

If the expensive settlement pattern is to be permanently corrected, something must be done to close the door behind the people as they leave the "problem" areas. New settlement must be prevented to plug this leak in the public purse.

The matter of gradually closing the problem areas requires first that they be identified by land classifications which take into account soil fertility, frequency of frosts, markets, the availability of outside work, and other factors which make areas suitable or unsuitable for residence. Armed with this information, the county commissioners would be in a position to withhold from resale tax delinquent lands which are unsuited for private ownership. The commissioners, of course, must first be delegated the authority to do this and to retain such lands in public hands.

To supplement this process a blue line should be drawn around the expensive problem areas with low income producing capacity. This line would mark the zone in which no new settlement would be permitted. The established residents would have the right to stay, but as they left there would be no replacements.

A time would be reached when some of the areas would be so depopulated that the county could afford to buy out the few remaining residents. The subsequent savings would in the

aggregate exceed the cost of purchase.

Unfortunately, as much as they might wish to, the county officials are without authority to take any one of these three steps. An enabling act from the State legislature is required. These powers have been granted in other progressive states. Unless they are granted in Montana, the uneconomic settlement pattern and the accompanying burden of sustaining poor people on unproductive land will continue to be the taxpayers' nightmare in many parts of the State.

From even this casual inspection, it seems clear that many opportunities exist for Lincoln County to formulate a much more desirable land-use pattern.

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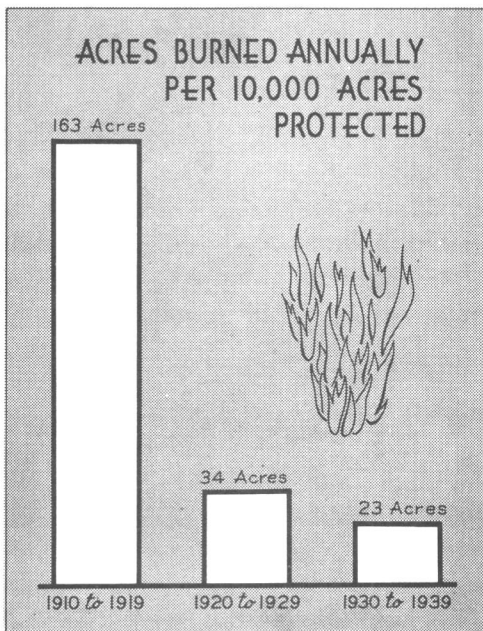
THE FOREST FIRE PROBLEM

The future of all the forest industries depends on the continued success of the fire fighters in keeping the number and area of "headline fires" within bounds.

One of the toughest jobs in this region is to prevent the forests from burning up. Fortunately, this job is now being done well in Lincoln County. As we look back over the records, this statement seems indisputable. Old-time fire fighters can remember a half dozen or so years up to the present during which the fire seasons were critical. Their list would probably begin with 1910 and end with 1940. These two years bear comparison. In 1910, there were few roads, lookout facilities, and trained fire fighters. The result: the area burned was seventy times greater in 1910 than in 1940.

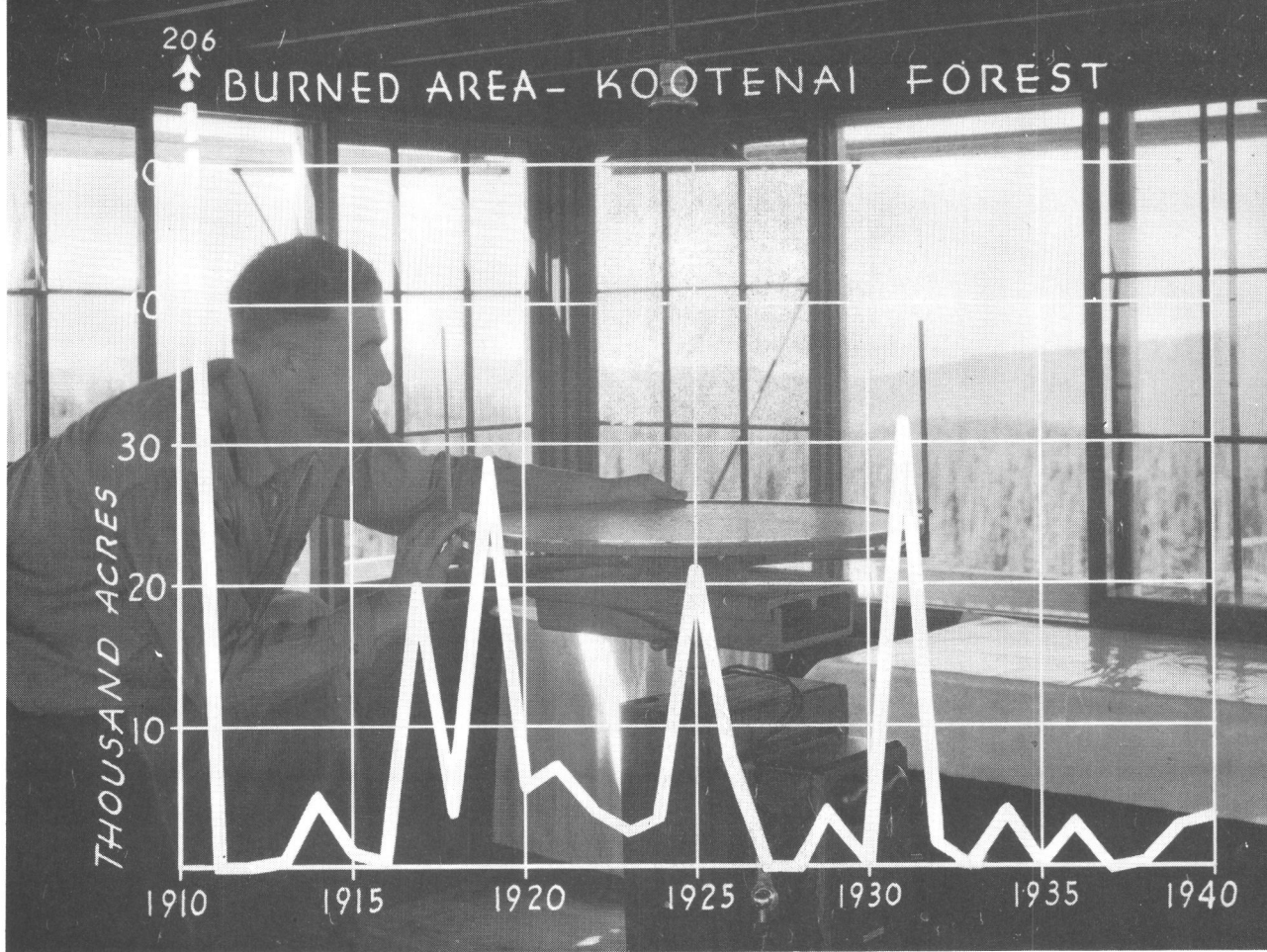
What might have happened in 1940 was indicated by the smoke columns which rose from the forests just across the international boundary. The Canadians,

because of inadequate finances, have only about one-twentieth the fire-fighting facilities possessed south of the line. H. T. Gisborne, of the Northern Rocky Mountain Forest and Range Experiment Station, has shown the consequence of this lack of facilities by comparing the 4 3/4-million-acre unit made up of the Kootenai and Kaniksu National Forests in the United States with a slightly larger area of similar country across the line in Canada. His comparison shows a far greater number of fires started south of the line, and the weather was just about the same: yet the total burned acreage on the Kootenai and Kaniksu Forests was 6,000 acres, whereas the Canada fires accounted for well over 200,000 acres.



Within the Kootenai National Forest the average annual area burned has decreased in each of the past two decades.

The most important fact in this great progress in reducing the



To reduce the number of high peaks in the fire chart during recent years has required an army of carefully trained men, modern equipment, and up-to-the-minute methods.

number of big fires and "bad years" is that the losses are now at a satisfactory level.

The job of fire control in Lincoln County is administered entirely by the Forest Service. In addition to protecting national forest land, it has for many years contracted with the Northern Montana Forestry Association to protect the lands of its members. Similar contracts have been made with various individuals and companies. The charges are made on a cost basis. This has been a purely voluntary arrangement, and for that reason the bulk of the small private holdings have not, until recently, been listed for protection but have ridden free on such protection as has been available. The fire law of 1939 and its amendments of 1941 change this situation. In Lincoln County this law brings all forest land under the protection of the Forest Service, which is acting as an agent of the State. Any owner may protect his holdings himself if he meets the standards of adequacy, and it is presumed that the first 160 acres of forest land of

any resident are protected "if more than one-half thereof is within the radius of one mile of a permanent habitation occupied throughout the fire season either by the owner or by someone under the owner's direction."

Despite the exemption of certain areas from cost, the practical aspects of the law seem quite satisfactory from all angles. The exempted area is not sufficiently great to make too heavy a load on the other land. In the vicinity of Eureka, Fortine, and Rexford where small private ownership is extensive the possibility of a devastating fire sometime in the future is greatly reduced because of tighter protection. For $2\frac{1}{2}$ cents per paying acre per year (somewhat higher within the Northern Montana Forestry Association Unit) and barring personal negligence, the small owner is relieved of actual fire-fighting costs which might be quite heavy.

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Thus the accomplishments in fire control so far have been twofold. All of the forest land in Lincoln County is now protected and the losses are being held to a satisfactorily low point. To do this has cost money, particularly on national forest land which is rough and hard to protect. During the three fiscal years 1936, 1937, and 1938 the fire costs on the Kootenai Forest averaged 13.3 cents per acre per year. This includes the wages of men on the lookout towers and at the fire line, depreciation and maintenance of buildings, and every other item properly chargeable to fire. For some of the bad years, the costs were considerably greater.

The first objective of the Forest Service was to put the fires out. With that part of the task in hand the objective is now broadened to one of doing a better job at less expense. There will always be big and expensive fires at certain intervals. But it is felt that the average costs can be reduced with scientific methods. The records already show savings resulting from the present policy of jumping heavily on the little fires and preventing them from becoming large and costly ones. Hand in hand with the objective of cheaper operation is the desire to put fire control in its proper place. At present, fire fighting is THE task on the national forests. It occupies a major part of the thought and energy of Forest Service workers. If as much progress can be made in the next 30 years as in the past 30, fire control as a problem may be reduced to a point where more effort can be spent to make the Kootenai National Forest best serve the community.

THE MAJOR POINTS

A logical question after examining the forest situation from all angles as we have done is "Which of these points are the most important--which should be given first consideration?" Just for the purpose of placing the emphasis in the right places, the following points are repeated as the six most important recommendations growing out of the preceding chapters:

1. Greatly increased effort to stabilize the Libby lumber industry, particularly with reference to combining timber of all ownerships into one management plan for permanent operation.
2. Passage of appropriate State legislation to permit the counties of Montana to correct uneconomical land-use patterns.
3. Development of a program to prevent cutting of timber with high recreation value.
4. Determination of desirable standards for recreational facilities and enforcement of these standards by public opinion and legal authority, if necessary.
5. Cooperation by the private owners and the Forest Service for the purpose of working out a sound plan for stabilizing the Christmas tree industry on a permanent basis.
6. A more or less complete overhauling of the tie and tie mill situation to make this industry more of an asset to the community.

TAKE THESE OPPORTUNITIES

AS MR. AVERAGE CITIZEN THOUGHTFULLY LEANS OVER HIS FENCE, WITH ONE FOOT COCKED IN THE WIRE BELOW--AS HE PUFFS THE GREY SMOKE FROM HIS PIPE INTO THE SKY, WHAT ARE THE DREAMS, THE HOPES HIDDEN IN THESE SMOKE CLOUDS? The material desires of most of us are not extreme--a full cupboard, comfortable shelter, respectable clothing, adequate medical and dental care, and the opportunity to enjoy some of the comforts and luxuries of the modern world such as waterfaucets, automobiles, and radios. These are the things we look to the forests, farmlands, and mines of Lincoln County to provide.

The American legend is of the "Great Man" who rose from humble beginnings to some pinnacle of success--for this is the land of great opportunities, great resources. Yet a large segment of the American people today are denied the fulfillment of their most simple wants. This has all come about because some groups are so much less able to compete than others, because we have handled our resources in such a manner as to get the greatest present return letting the future take care of itself, and because socially we are limping far behind our technological progress.

If we are to reach the objective of more abundant life, we must change our tactics. We must cease to be like a swarm of water beetles cutting a crazy crisscross pattern on the quiet pond--there is no better example of complete disunity of action. We must harness our united energies to create that standard of living we have not all been able to reach separately. As is apparent from the preceding chapters, the matter of properly managing the resources is a complicated problem. It requires strong leadership and careful planning.

Many people feel that the most important agricultural advancement of the past few years will prove to be the development of cooperative land-use planning. In this program, sponsored by the Department of Agriculture and the agricultural colleges, farmers in many counties are taking a

^o Cooperative Land-Use Planning--A New Development in Democracy. Ellery A. Foster, Harold A. Vogel. Agricultural Year Book. 1940.

stronger hand in building their future. Within their communities they are attempting to solve the local land-use problems. The community groups are organized into county planning boards. The technical assistance is furnished by the various public agencies.

The pattern is there. It should be different in Lincoln County to the extent that this is more than a job for the farmer. A planning group is needed which represents a cross section of the entire county--a democratic representative of the people to take the leadership, to coordinate the efforts of county, State, and Federal Governments, and to keep the main problems always in focus.

The lumber industry, forest recreation, the Christmas tree industry, the farmlands and the as yet unexplored possibilities of the plywood, chemical, and mineral industries--these are the materials Lincoln County has to work with. With them can be built a solid economy.

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° Lincoln County had a planning board in connection with the National Resources Board planning program several years ago. But it died almost before it started because of lack of support and public interest.

A FEW FOREST STATISTICS FOR LINCOLN COUNTY as of January 1, 1939

FOREST AREA BY OWNERSHIP

Owner	Noncommercial	Commercial	Total
----- Thousand Acres -----			
Large companies	15.2	295.7	310.9
Small owners	1.5	148.1	149.6
State	13.3	52.9	66.2
County		23.9	23.9
Public domain	0.2	5.9	6.1
National forests	392.6	1,319.4	1,712.0
Total	422.8	1,845.9	2,268.7

STOCKED COMMERCIAL FOREST AREA BY TYPE

Type	Saw timber	Pole	Seedling & sapling	Total
Thousand Acres				
Western white pine	57.9	31.3	32.8	122.0
Ponderosa pine	245.8	61.8	39.7	347.3
Larch-Douglas fir	335.0	333.3	151.6	819.9
Hemlock-grand fir	0.4			0.4
Douglas-fir	6.1	15.9	2.4	24.4
Engelmann spruce	81.8	12.8	4.7	99.3
Lodgepole pine	21.2	201.2	139.1	361.5
Western redcedar	4.0	1/	2.0	6.0
Cedar grand fir	1.9	1.6	0.6	4.1
Cottonwood	0.1	3.4	2/	3.5
Total	754.2	661.3	372.9	1,788.4

1/ Included with seedling and sapling stands
2/ Included with pole stands

COMMERCIAL FOREST AREA BY OWNERSHIP

Owner	Saw timber	Pole	Seedling & sapling	Deforested	Total
----- Thousand Acres -----					
Large companies	210.9	39.9	38.3	6.6	295.7
Small owners	37.1	64.6	40.8	5.6	148.1
State	29.9	11.8	5.4	5.8	52.9
County	5.3	9.7	8.4	0.5	23.9
Public domain	2.3	2.7	0.7	0.2	5.9
National forests	468.7	532.6	279.3	38.8	1,319.4
Total	754.2	661.3	372.9	57.5	1,845.9

ANNUAL GROWTH OF THE FORESTS COMPARED WITH ANNUAL DRAIN

Species	Current Growth	Current Drain		
		Cutting	Fire	Total
Thousand board feet-(Scribner log scale)				
Western white pine	3,805	7,735	1,442	9,177
Ponderosa pine	10,365	23,251	118	23,369
Western larch	36,128	11,603	6,974	18,577
Douglas-fir	18,915	5,952	1,131	7,085
Engelmann spruce	6,213	2,732	20,416	23,148
Other species	17,138	3,308	750	4,028
Total	92,564	54,581	30,801	85,382

SAW-TIMBER VOLUME IN COMMERCIAL SAW-TIMBER STANDS BY OWNERSHIP

Owner	Species						Total
	Western white pine	Ponderosa pine	Western larch	Douglas-fir	Engelmann spruce	Other species	
	Million board feet - (Scribner log scale)						
Large companies	36.7	806.7	893.8	369.2	30.5	33.3	2,170.2
Small owners	9.2	68.1	170.8	73.4	8.7	4.0	334.2
State	0.6	95.3	107.1	56.7	12.8	6.7	279.2
County	0.5	4.2	24.7	12.7	0.7	0.8	43.6
Public domain		7.9	9.2	3.6	0.1	0.2	21.0
National forests	368.4	644.8	1,668.8	739.9	1,170.9	390.5	4,983.3
Total	415.4	1,627.0	2,874.4	1,255.5	1,223.7	435.5	7,831.5

THE FOREST SURVEY is a fact-finding investigation within the Branch of Research of the Forest Service. It was set up to determine how much timber there is, how fast it is growing, how rapidly it is being cut, how much is being destroyed by fire, insects and disease, and what can be done to make the forests return the most to the community. Much information of this nature has been collected for Lincoln County. More complete statistics concerning the forest resource are presented in a set of 11 tables published as a part of the Forest Survey's statistical service. Copies of these tables can be had by writing the Northern Rocky Mountain Forest and Range Experiment Station, Missoula, Montana.